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TRANSACTIONS

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AMERICAN ENTOMOLOGICAL SOCIETY.

VOLUME XXXII.

DESCRIPTIONS OF NEW NEARCTIC NEUROPTEROID INSECTS.

BY NATHAN BANKS.

(Plates I and II.)

The following new species are mostly from the United States; a few are added from Mexico Five new genera are established in the caddice flies, and since a number of the new forms belong to the Hydropsychidæ, I have given a synopsis of the genera of that family so far known to occur in our country.

Among the most interesting species is the new *Panorpodes* from North Carolina; the other species occurs in Oregon. This peculiar distribution is paralleled by other insects, indicating an affinity of the faunas. Altogether 47 species are described as new, the types of which are in the author's collection.

Embia californica n. sp.—Pale yellowish brown, basal joint of anterior tarsi and bases of abdominal segments more reddish; everywhere clothed with short, fine hairs. Antennæ 17-jointed, about twice as long as head; head broadest at eyes, broadly rounded behind; prothorax constricted in middle, broader behind than in front, where it tapers to a blunt point; mesothorax longer than metathorax, latter united to the intermediary segment; in nymphs each bears a pair of wings longer than the segment. Abdomen as long as thorax plus head, the terminal segment narrowed toward tip; cerci longer than terminal segment, the joints subequal in length. Length 7 mm.

Three specimens from near Los Angeles, Cal. (Hutchinson).

Elipsocus punctatus n. sp.—Head yellowish, ocelli on brown spot and a quadrate brown spot above it on middle of vertex, a brown spot over each eye; antennæ brown, yellowish on basal part; thorax brown, a pale stripe in front on each side toward base of wings, and a median pale spot on metascutellum; abdomen brown. Wings hyaline, venation pale brown, dark spots at base and tip of pterostigma, and at ends of veins, those on apical part almost touch each other to form a band. Legs pale. Venation as usual in the genus, the pterostigma rather broader toward tip than in *E. canadensis*. The tip of male abdomen has two long, slender, erect, curved pieces, and a stouter, acute, median piece between them. Length 3 mm.

One specimen from San Mateo Co., Cal. (Baker).

Psocus californicus n. sp. Head grey, nasus blackish, with about 10 white lines, ocelli on black spot, and a black spot in middle of vertex, and a brown one over each eye; antennæ dark, basal joints pale; mesothorax black, with a yellow Y, and a pale band between it and the black metathorax; abdomen black above, pale below, legs pale, femora darker. Wings hyaline, venation brown, the base of fork under pterostigma white, and also the veinlet closing the cell, the posterior half of outer side of cell and the cubitus from the cell to next fork white; pterostigma white at base, rest dark brown or black, an oblique dark band across wing near base of cell, not very strongly marked, ending in a black dot at end of anal vein; two spots basad of this band. Length 3.2 mm.

One specimen from the mountains near Claremont, Cal. (Baker).

Psocus floridanus n. sp. -Head pale, nasus lineate with black, ocelli on a dark spot; some small brown spots on middle and sides of vertex, antennæ brown. Thorax black, with a pale median stripe; legs pale, femora darker; abdomen brown, with pale spots toward tip. Wings hyaline, rather whitish on basal part; venation black, posterior part of veinlet closing discal cell white, as also the fork of radial sector, a spot basad of discal cell, and an elongate spot at anal angle black, the anal margin also black for some distance out; pterostigma with basal black dot, and a large spot in apical half extending behind the cell. Vertex slightly convex; antennæ rather short. Discal cell touching radial sector, fully one and one-half longer than broad at base, the tip about one-third shorter than base, the outer side slightly concave; the pterostigma angulate behind. Length 3.6 mm.

Two specimens from Biscayne Bay, Florida (Slosson).

Psocus confraternus n. sp.—Head pale, ocelli on a black spot; nasus pale, with about ten black lines, a dark patch on middle of vertex; antennæ brown; thorax dull black, a yellow Y on mesothorax; legs dull yellowish, femora rather dusky above; abdomen blackish. Wings hyaline, venation mostly black, the posterior side of discal cell and the posterior part of outer side are white, also the base of fork of radial sector is white; the pterostigma has a black spot at base and a large blackish spot occupying most of its area; there are two incomplete and sometime more or less indistinct blackish bands on basal half of the wing, and a black point at end of anal vein. Hind wings hyaline, with blackish venation. Antennæ rather long, hairy, vertex straight across on top; wings moderately long; discal cell about twice as long as broad, scarcely one-third broader at base than at tip, outer side rather convex beyond middle, inner side slightly convex, the veinlet connecting radial sector to the discal cell is about as long as the posterior side of cell; pterostigma long, broadly rounded behind. Length 1.2 mm.

Two specimens from Mt. Washington, New Hampshire (Mrs. Slosson), and Aurora, West Virginia (Heideman), also one from Brookline, Massachusetts (Johnson). This may be *Psocus bifasciatus* of Walsh, but that name is preoccupied in the genus.

Psocus posticatus n. sp.—Face pale yellow, clypeus black, nasus pale brown, ocelli on black, vertex brown, with a yellow spot each side; antennæ dark brown, basal joint paler; thorax brown, a yellow V in front and a transverse spot on mesoscutellum; abdomen dark brown, segments marked transversely with yellow; legs pale, tarsi brown. Wings dusky hyaline; venation black; pterostigma black, long, rather slender, rounded behind; the veinlet separating first and second posterior cells is broadly clouded with brown; and there is a dark spot at end of anal vein. Discal cell four sided, the base almost twice as wide as apex, anterior side rather convex, other sides straight; the radial sector does not fork as soon as in most species; second and third posterior cells are subequal at base, and not near as wide as the first at base. Head rather narrow, vertex straight across on top. Length 3.6 mm.

One specimen from Guadalajara, Mexico, August (McClendon).

Psocus minusculus n. sp.—Head pale dull yellowish, unmarked; antennæ yellowish; thorax and legs yellowish; abdomen brown. Wings hyaline, venation brown, a black point at base of pterostigma, and one at end of anal vein. Head rather large, nearly straight across on top, slightly emarginate in middle. Pterostigma truncate at base, concave behind, deep and almost pointed at outer angle; discal cell rather more than twice as long as broad, outer side concave, very plainly five-sided; the posterior cells subequal in size at base, or the middle one a trifle larger. Length 2.4 mm.

Four specimens from Falls Church, Va.

Perla californica Bks. Head brown, pale reddish yellow between ocelli and on clypeus; antennæ pale brown; prothorax brown, with a trace of a paler median line, rest of thorax dark brown, with a pale median stripe; abdomen pale brown; venter pale in middle, brown on sides; femora pale brown, tibiæ paler, with a blackish band on base; setæ yellowish brown. Wings nearly hyaline, venation pale brownish; ventral plate of female pale, with a prominent rounded blackish spot each side. Pronotum plainly broader than long, anterior angles acute, posterior ones slightly rounded. Structure similar to *P. lycorias*. Length 30 mm.

Claremont, California (Baker).

Readily separated from allies by two black spots on the ventral plate.

Perla carolinensis Bks.—Head nearly covered by a large black spot, angulate behind in the middle, and leaving a triangular orange spot each side near base of antennæ, basal joint of antennæ mostly black, second joint yellow, beyond brownish, pronotum dull black, rather paler on sides; thorax black; abdomen brown, pale below, toward tip it is yellowish; setæ dark brown; legs dull brown, darker at tips of joints and on the tarsi; wings grayish hyaline, venation brown. Thorax but little narrowed behind, angles acute, rugosities not very strong. Wings rather long, radial sector forked two or three times beyond anastomosis, the first some distance out from cross-vein. Ventral plate of female reaches scarcely one-half way across the next segment, and is rather deeply emarginate in the middle; the last segment of the male shows a raised, rather transverse white spot, slightly angulate in front. Length, ♀, 32 mm.; ♂, 24 mm.

One pair from Black Mountain, North Carolina, June (Beutenmüller).

Perla valida n. sp.—Head pale yellow, ocelli black, clypeus dusky, each side margin black; antennæ pale yellowish; palpi brown; pronotum pale dull brown, a narrow, median yellowish stripe; thorax pale brown, a yellowish spot each side near base of wing; abdomen brownish above; venter and sternum pale yellowish; setæ pale yellow; legs pale, a black mark at tips of all femora, barely darker at tips of tibiæ, the apical part of tarsi black. Wings grayish hyaline, venation pale brown. Ocelli forming a triangle rather broader than high, the posterior ocelli a little nearer to each other than to the eyes; pronotum much narrower than the head, slightly narrowed behind, moderately rugose each side. Wings rather long and narrow, radial sector with four branches (counting one from the anastomosis), median cell with seven cross-veinlets. Length 21 mm.

One specimen from Wayneville, North Caroline, July (Sherman).

Raphidia occulta n. sp.—Head shining black, mouth region pale, a long narrow, median, red scar behind, the lateral scars not very plain; antennæ dark, basal joint dark above, next two or three pale. Pronotum reddish on anterior half, black behind, with three pale stripes; rest of thorax black, with red spot on metascutellum; abdomen black, tips of segments pale, especially on venter; legs pale. Wings hyaline, pterostigma yellow-brown, veins brown. Head with posterior sides barely convex, with a moderately long neck; pronotum rather slender. Wings with four cells below the pterostigma, the second acute at base, and often pedicellate; the pterostigma quite long, extending to tip of cell below. Male genitalia with the upper median piece broader at tip (seen from side) than at base, two upcurved hooks below it (as in allied species); the valves on venter have an even inner edge, not excavate toward tip as in *R. oblita*. Length 11 mm.

Specimens from Claremont, California (Baker); others from Prescott, Arizona (Oslar); and Pecos, New Mexico, June 21st (Cockerell). Separated from all others by shape of upper piece of male genitalia; also from *R. oblita* in shape of valves, and narrow head; from *R. adnixa* in dark basal joint of antennæ; and from *R. bicolor* in venation and shape of pterostigma.

Chrysopa marginalis n. sp. Head yellowish, a brown mark each side from eye to mouth; antennæ yellowish; thorax green, paler along the middle; abdomen greenish; legs yellowish; wings hyaline, venation green, except that most of the cross veinlets are marked with brown at ends; in forewing the cross veinlets (except the costals), the branches of radial sector, and the veinlets along hind margin are plainly margined with brown; in the hind wings the outer gradate veinlets are wholly brown. The forewings are rather broad beyond middle (much broader than in *C. rufilabris*) and barely pointed at tips; the divisory veinlet of third cubital cell ends beyond the cross-vein. Length 11 mm.

One specimen from the mountains near Claremont, California (Baker). Distinguished by the brown margins of cross veinlets in forewing.

Chrysopa robusta n. sp. Head broad, pale yellow, a red stripe each side on cheeks; antennæ wholly pale, close together at base, rather short; vertex low and flat, scarcely as high as the eyes in the middle; prothorax very broad, narrowed in front, reddish on sides, leaving a broad, median, yellowish stripe, with parallel sides; rest of thorax and the abdomen very broad and heavy (much broader than in other species); the mesothorax with a reddish dot each side near front; abdomen brown towards tip; legs pale yellowish. Wings hyaline, with pale greenish venation, marked with black at bases and tips of many cross-veins, the gradate veinlets wholly black, and the costals only at the subcosta; pterostigma rather distinct; hindwings similar to fore pair. Forewings rather long, rounded at tips; about eight or ten gradate veinlets in each series; the third cubital cell is about one and one-half times longer than broad, the divisory veinlet separating off only a small portion of the cell. Expanse 38 mm.

One specimen from Tyron, North Carolina (Fiske).

Readily known by its very broad and heavy body; allied to *C. rufilabris*, but separated from it and allies by shorter cubital cell, more gradate veins, flatter vertex, etc., as well as by heavy body.

Chrysopa fascialis n. sp. Head pale greenish white, two dark dots under each eye in a line toward mouth; palpi and antennæ wholly pale; thorax and abdomen entirely green and unmarked; legs pale greenish; wings hyaline, venation green, basal costal cross veinlets and some of the anal cross veinlets wholly black, other cross-veinlets black at bases, gradate veinlets marked with black in middle, divisory veinlet of third cubital cell wholly green; hindwings with venation colored similar to forewings, pterostigma not distinct in either pair. Wings moderately long, both pairs acute at tips; antennæ not as long as wings. Length 16 mm.

One specimen from Durango, Mexico.

Leucochrysa antennata n. sp. Head pale yellowish, vertex with two reddish stripes above, and an angulate red line in front over bases of antennæ; antennæ pale, basal joint with two reddish lines above, 8 or 10 of the next joints have a continuous red stripe on inner side; pronotum pale, an indistinct dark mark each side, rest of thorax pale; abdomen brown above, pale below; legs pale; wings hyaline, longitudinal veins pale, the cross-veinlets almost all entirely dark brown; hindwings with cross-veinlets dark only at bases; pterostigma not very distinct in either pair of wings. Antennæ much longer than wings, latter rather short, fore pair broadly rounded at tips, hind pair acute, divisory veinlet of third cubital cell starts very close to cubital vein, two series of gradate veinlets in both wings. Length 14 mm.

One specimen from Tuxpan. Mexico, September 5th (McClendon). Differs from all others known to me by red line on basal fourth of antennæ.

Eremochrysa californica n. sp.—Head yellowish, vertex somewhat reddish each side, basal joints of antennæ short, rather reddish, unmarked, rest of antennæ yellowish, dark toward tip. Pronotum short, yellowish, three short dark marks on front part, rest of thorax not very distinctly spotted on sides, pale in middle; abdomen brown; legs pale. Wings hyaline, cross-veins almost all wholly brown, the longitudinal veins are not spotted with brown, except sometimes at ends of cross-veinlets, divisory veinlet of third cubital cell dark and ending plainly beyond cross-vein. Length 8 mm.

Two specimens from Santa Clara County, California. Agrees with *E. fratera* in wholly dark cross-veins, but differs in lacking dots on longitudinal veins, in shorter basal joints of antennæ, without the brown stripes, smaller size and markings of prothorax.

Calinemurus fuscus n. sp.—Head yellow, inter-antennal mark jet black, extending below base of antennæ from eye to eye, not extending down in median line; vertex with two dark transverse brown bands; antennæ brown, basal joints paler, with a brown mark; thorax black, a narrow median line and two stripes each side yellow, one of the latter sometimes broken into an anterior spot and a dash behind it; mesothorax and metathorax black, with many small yellow spots. Abdomen black, above narrowly yellow on basal half, with a median dark line: apical segments with a small yellow spot above, scarcely distinct; legs yellow, heavily spotted with black, especially on anterior pair, tarsal joints black on apical half. Wings rather cinereous, the veins black, in forewings many of the cross-veinlets are slightly margined with black, the longitudinal veins more or less interrupted with pale, black patches at end of the pterostigma and along the cubital vein, and at end of same, with an oblique line reaching toward the tip of wing, and a patch at end of anal vein; hindwings with black venation, the longitudinal interrupted with pale. Vertex moderately high; antennæ rather long; abdomen (of male) a little longer than wings, the last segment much shorter than the preceding, and also shorter than the slightly curved, black appendages. Wings moderately narrow, all acute at tips, the venation very dense, and the costal area mostly with three rows of cells; two rows of cells basad of the origin of the radial sector; two series of cells between cubitus and anal vein most of the way; the anal vein ending beyond origin of second fork of radial sector; apical part of wing very densely veined. Expanse 54-60 mm.

Two male specimens from Nogales. Arizona, July 6th (Oslar).

Maracandula bellula n. sp.—Head yellow, a black inter-antennal mark extending below antennæ each side; vertex pale, with a black spot on each side; antennæ short, black, with a broad yellow band near middle covering about four joints, beyond blackish; palpi pale, last joint blackish, slender; pronotum pale yellow-gray, with a black spot on each side near front, and one in middle behind; rest of thorax brown or dull black, a yellow spot each side in front of base of wings; legs pale, the femora more or less infuscated, especially above, often black; tibiæ with a basal and a more prominent apical black band; tarsal joints barely black at tips; abdomen black, each segment with a broad whitish band at base, several of those toward base often contain a median black mark, the one on segment 2 usually connected to the black sides; wings hyaline, venation brown, broadly interrupted with white, many of the cross-veins wholly white, a black cloud near end of anal vein; and one near end of cubital vein, latter also present in the hindwings; pterostigma indistinct a brown dot at inner base. Body with long black and some white hairs. Expanse 35–40 mm.

Three Rivers, California (Baker); Reef, Arizona (Biederman); and Phoenix, Arizona (Kunzé).

This is what Mr. Currie has identified as the *Myrmeleon pygmæus* of Hagen. But Hagen's description differs from this species in many particulars. He says that his species has a black face, with yellow spots; that the prothorax is fuscous, varied with yellow; that the abdomen is pointed with fuscous; and that the legs are spotted with black; all of which is strikingly contrary to this species. Moreover, his statements about the antennæ and wings do not fit this species. In fact I see nothing in his description, save that it is a small species without spurs, that will suit the species before me.

Dendroleon speciosum n. sp.—Head pale yellowish; a broad, deep black inter-antennal band, truncate above and below, and a dull black band on vertex from eye to eye; antennæ brown, as long as head and thorax; pronotum pale, thickly dotted with black, a black median stripe, a line from furrow curving back each side, margined by a pale line, and beyond a blackish patch; rest of thorax mostly dull black above, a pale spot on each lobe, and each side on the mesoscutellum; pleura with a broad black stripe through the middle; abdomen black, a small, yellowish, hastate mark above in middle of each segment; legs pale, femur I mostly black, except at base and on inner side; tibiæ dotted with black, especially on base, and tarsal joints beyond the second are blackish; leg II more blackish, but the first tarsal joint wholly pale; leg III with broad black band on basal half of femur and the apex black, tibia dotted with blackish, and black at tip, third and fourth tarsal joints blackish. Legs very slender, first tarsal joint longer than next three together, spurs longer than joints one and two together, curved and slender. Wings hyaline; venation pale, marked with black, median vein almost wholly black; many cross-veins black and margined with black, most of those between median and cubitus very broadly margined with black; a large black spot on anal margin half-way out to the end of anal vein; a curved black mark from end of anal vein upward and outward, another mark along one of cubital branches toward the preceding mark, nearly meeting to form a semi-circle, and enclosing one or two black spots; an oblong black mark at pterostigma, and an oblique band in apical part of wing parallel to the apical margin. In hindwing the venation is marked with black, there is a rounded black spot at the pterostigma, and a small elongate one near apex. Expanse 54 mm.

One specimen from Boulder, Colorado, July 31st (Oslar).

Differs from *D. obsoletum* in that there are a great many more small spots in the wings, and the large ones are not as large, as well as in coloration of legs, head and thorax.

Panorpa carolinensis Bks.—Head yellowish, black around ocelli; antennæ brown; thorax brownish yellow; abdomen and legs yellowish. Wings hyaline whitish, with black bands and spots as follows: an apical band, a broad pterostigmatical band, nearly touching the apical at each margin, and with a pale spot on the posterior border, where the band is broader than elsewhere, a large triangular costal spot near middle of wing, and extending almost half way across it, a broad (not geniculate) sub-basal band, and a costal and anal spot black; venation dark. Wings slender, the subcosta reaches pterostigma in forewings; in the male the 5th segment has a distinct horn above. Length 15 mm.

One male from Black Mt., North Carolina (Beutenmüller).

Probably nearest to *P. rufa*, but the wings are less elongate, and membrane not yellowish, nor venation pale in pale areas; the bands are broader, and not geniculate as in that species.

Panorpodes carolinensis Bks.—Pale yellowish; a little black around ocelli; antennæ black, except joints one and two; legs without dark marks; abdomen dark above on basal two-thirds; tip of the claws of genitalia dark; wings flavescent, with yellowish longitudinal veins and white cross-veins. Face short, triangular, a stout tooth below each eye, extending from cheek; wings rather narrow, the subcosta runs into the pterostigma; abdomen slender, segments not modified, except the last, which is similar to that of *Panorpa*. The prothorax has four long black bristles above, and there are two on each side of the mesothorax. Length 16 mm.

One male from Black Mt , North Carolina (Beutenmüller).

Agrees with *P. oregonensis* McLach. in many particulars; but has darker antennæ, and the terminal abdominal segment has longer claws, each with a strong basal tooth, and the median piece that projects below, when seen from the side, is shorter, and has a concave upper margin.

Colpotaulius medialis n. sp.—Head rufous, with some yellowish bristles, vertex with a short black mark on middle behind; palpi yellowish; antennæ yellowish red, including basal joint; prothorax large, two and one-half times as broad as long, tuberculate above, rather dull yellowish red, with a narrow, black, impressed median stripe, rest of thorax similar in color. the black stripe extending across mesothorax, but broader; abdomen brownish yellow, paler beneath; legs pale yellowish, with black spines. Forewings clothed with short yellow hair, indistinctly irrorate with pale brown, more distinct on anal region, costal and subcostal areas unmarked, venation red-brown, very distinct; hind wings hyaline, faintly grayish at tips The forewings are rather narrow, the outer edge oblique, the discal cell much longer than its pedicel, fork 1 barely extending upon discal cell, fork 3 acute at the anastomosis in both wings; outer margin of hind wing strongly indented just behind end of fork 5. Expanse 27 mm.

Specimens from Ithaca, New York; Muskoka, Ontario, Canada; and Lake Forrest, Illinois.

I had considered this to be *C. consocia* Walk , but recently have received an allied species, with basal joints of antennæ black; thus agreeing better with *C. consosia*. Both have the dorsal black stripe. *C. consocia* is smaller, and the fork 3 of all wings is pedicellate, not reaching the anastomosis; the markings are heavier in the middle of the wings, and paler in anal region. I have it from New Hampshire.

PYCNOPSYCHE new gen.

A Limnephilid; spurs 1–3–4; ocelli rather small; pronotum of two rather prominent bristly lobes, more prominent than in *Stenophylax;* thorax with a bristly wart at base of each wing, and a pair of smaller, elongate ones near middle of mesothorax; wings very broad at the pterostigma, costal margin much rounded, apical margin oblique; membrane granulate; discal cell longer than pedicel, apical half on upper side concave, fork 3 goes back no further than fork 1; in hindwings fourth apical cell has an oblique base, but just before base is narrower than second apical cell.

Type.—*Limnephila scabripennis* Rambur.

Hagen put it in *Halesus*, Walker described it as a *Neuronia;* I have kept it in *Stenophylax*, but it is better in a new genus.

Stenophylax (?) parvulus n. sp.—Face pale, clothed with pale hair; vertex brown, with whitish hair, behind are two large transverse yellow warts bearing yellowish hair; antennæ pale, basal joint rather long, clothed above with yellowish hair; prothoracic lobes yellow, clothed with long white hair; thorax brown, with some yellowish hair; abdomen brown; legs very pale yellowish, with black spines; wings pale, veins brownish, bearing erect, black hairs; membrane with very short, fine, yellowish and blackish hair, scarcely visible, some brown marks along the median vein and apical sectors, especially prominent at thyridium and at base of the fifth apical cell; hind wings whitish hyaline, venation yellowish, rather more yellowish in the pterostigmatic region. Forewings narrow, costal area narrow, discal cell not closed, no trace of the cross-vein in either wing, first and fifth apical cells acute at base and not extending before anastomosis; radius slightly bent at the pterostigma; apical margin of wing faintly rounded; hind wings have the margin entire, the discal cell faintly closed in one wing, not in the other, first and fifth apical cells acute at base. Spurs 1–3–4. Expanse 15 mm.

One specimen from Hampton, New Hampshire, May 17th (S. A. Shaw).

Rhyacophila hyalinata n. sp.—Head black, with sparse yellow and white hair; antennæ pale, each joint with a brown band; palpi pale; prothorax with yellow lobes, rest of thorax blackish; abdomen blackish above, yellowish below. Legs pale yellowish, tibia I unmarked. Wings brownish hyaline, venation brown, except yellow subcosta and radius, pterostigma dark brown at base, paler beyond, apical part of wing with numerous patches of white; a whitish hyaline mark on median vein at forking, extending down on connecting veinlet toward cubitus; hind wings grayish hyaline, pterostigma very distinct dark brown, venation yellow-brown. Length 14 mm.

Several specimens from southwestern Colorado, July 22d (Oslar). Similar to *R. fuscula*, but not as dark, smaller, and with no dark mark on anterior tibiæ.

Rhyacophila coloradensis n. n.
R. stigmatica Bks. Trans. Am. Ent. Soc. xxx, p. 108, 1904.

I changed this in the explanation of the plate, but forgot to do so in the text—there is an *R. stigmatica* in Europe.

NAMAMYIA n. gen.

A Sericostomatid. No ocelli; spurs 2–4–4; antennæ short, basal joint longer than head; wings broad, closed discal cells in both fore and hindwings, in forewings a cross-vein connects radial sector to radius; all five forks in forewings, three and four pedicellate.

Type.—*N. plutonis*.

Namamyia plutonis n. sp.—Jet black throughout, hindwings scarcely as dark as forewings; a black point in base of third apical cell in forewing, clothed with moderately long black hairs. Antennæ much shorter than wings, stout, basal joint longer than head, clothed with long, semi-erect hairs. Vertex broad, with a large wart each side, crowned with erect bristles; lobes of prothorax large and crowned with erect bristles. Legs rather long, thickly clothed with hair; spurs long; subapical pair of middle tibiæ at end of second third, in hind tibiæ beyond second third; hind tibiæ plainly longer than hind femora, middle tibiæ as long as femora; first joint of hind tarsus longer than second and third together. Hind wings broad, not much shorter than fore pair, and as in fore pair there is a connecting veinlet from radial sector beyond the fork bac to the radius. Expanse 36 mm.

One specimen from Santa Clara County, California (Baker); also from Humboldt County, California (Barber).

Goera fuscula Bks.—Maxillary palpi with golden or tawny hairs; antennæ dull black; labial palpi pale on basal part, black beyond; vertex black, golden hairs on the posterior warts; thorax black, some golden hairs form a median stripe on the mesonotum; abdomen dull black; wings uniformly clothed with blackish hairs, venation darker; legs pale brownish, the posterior tibiæ and tarsi paler. Ventral comb of two rather long median teeth, and three each side much smaller. Venation as usual in the genus. Expanse 22 mm.

One male from Black Mt., North Carolina, May 21st (Beutenmuller).

NOTIOPSYCHE n. gen.

Maxillary palpi short, broad, flattened, erect and appressed to face; labial palpi extremely long and slender: basal joint of antennæ porrect, longer than head; two spurs on tibia I, others lost, probably 4–4; discal cell in both wings closed; forks 1, 2 and 3 in forewings of male; forks 1 and 3 present in hind wings. Forewings of male very broad, costal area very broad, but the median area is still broader, the median and cubital veins close together and bent toward the posterior margin.

Type.—*N. latipennis* n. sp.

Notiopsyche latipennis Bks.—Face gray, with short gray hair; vertex darker, with longer yellowish gray hair; basal joint of antennæ clothed inside with black hairs, longer below, elsewhere with gray hair. rest of antennæ pale, annulate with black, and below with short, erect bristles; prothorax with gray hair above, rest of thorax yellowish; abdomen brown, tip and genitalia yellow; legs pale yellow; wings gray, with yellow-gray hairs, sparse and appressed; along costal margin are longer, darker hairs, pointing back over costal region; venation pale brown; hindwings grayish, venation darker, some scattered yellowish gray hair on membrane; cubitus with two apical branches, apparently no anal veins; discal cell nearly three times as long as its pedicel, narrowed near tip; cross-vein between radial sector and median is oblique. Expanse 20 mm.

One male from Black Mt., North Carolina, June (Beutenmüller).

ATOMYIA n. gen.

Palpi like *Lepidostoma;* basal joint of antennæ scarcely as long as head, thread not ciliate; spurs 2–4–4; wings rather long and slender; discal cell closed in both pairs; forks 1, 2, 4 and 5 present in forewings; forks 1 and 3 present in hindwings; discal cell in forewings not very long; the anal vein runs into an oblique vein from the cubitus, parallel to fork 5, which is part of the disjointed anastomosis; no cross-vein between radial sector and median vein.

Type.—*A. modesta* n. sp.

Atomyia modesta Bks.—Maxillary palpi dark gray, labial palpi blackish; basal joint of antennæ black, beyond pale, narrowly annulate with dark; head black, gray hairs in front, yellowish above from the warts; thorax brown, yellowish tufts at base of the forewings; abdomen dark brown above, yellowish beneath; legs pale yellowish. Wings gray, sparsely clothed with blackish hairs; venation mostly yellow-brown, fringes dark gray, rather long, especially so on the posterior margins. Preapical spurs on hind tibiæ once and one-half their length before tip; preapical spurs of middle tibiæ about twice their length before tip, and nearly as close to base. Discal cell much narrowed before the tip, about half as long as its pedicel. Expanse 14 mm.

Specimens from Black Mt., North Carolina, May (Beutenmüller).

Sphinctogaster lutescens Provancher.—Head black, with few long white hairs; antennæ and palpi pale; thorax pale yellow, an oblong spot in middle of base, and a spot each side at base of wings, dark brown, long yellow or white hairs in tufts; abdomen brown above, yellowish below; legs pale yellow. Head transverse, antennæ at base widely separated, the basal joint not very long, not longer than vertex; antennæ scarcely as long as wings; vertex with a median carina, and an elongate wart each side near posterior margin. Spurs short, 2-4-4; subapical pair on middle tibiæ plainly beyond second third, in hind tibiæ they are six times nearer to tip than to base; hind tibia swollen near tip and curved, much longer than femur; middle tibia shorter than femur. Abdomen compressed, in male swollen below, and obliquely truncate at tip. Wings pale yellowish, with short, sparse pale hair, venation of forewing as figured, in hindwing the discal cell is open, and there are no furrows. There are a few small spines on middle and hind tibiæ. Expanse 20 mm.

Three specimens from Ithaca, New York.

The shape of the male abdomen is peculiar, but the broad head and widely separated antennæ are of more generic importance.

Sphinctogaster nigrosoma n. sp.—Similar in structure to *S. lutescens*. Differs in having palpi dark, basal joint of antennæ black and black haired, beyond pale, with brown tips to joints. Thorax deep black; femora of legs black, except extreme tips; abdomen brown. Wings rather darker than *S. lutescens*, with gray fringe. More black hairs on vertex. Expanse 24 mm.

One female from Ithaca, New York.

The genera of Hydropsychidæ known to me as occurring in North America may be separated by the following table:

1. Spurs 3-4-4; radial sector connected to radius above discal cell; no ocelli...2.
Spurs 1 or 2-4-4..6.
2. No cross-vein in costal area; discal cell in hindwings closed..**Neureclipsis.**

A cross-vein in costal area .... 3.
3. Discal cell in hindwings closed .... 4.
Discal cell in hindwings open .... 5.
4. Middle tibiæ of female dilated; maxillary palpi shorter; smaller species, less marked .... **Holocentropus.**
Middle tibiæ of female not dilated; maxillary palpi longer; larger, more marked species .... **Plectrocnemia.**
5. Fork 1 present in forewings .... **Polycentropus.**
Fork 1 absent in forewings; antennæ strongly crenate .... **Cyrnus.**
6. Radial sector connected to radius above or near discal cell .... 7.
Radial sector not connected to radius; discal cell short; no ocelli; all five forks present in forewings .... **Hydropsyche.**
7. Ocelli present; no depression in front part of the mesonotum; fork 1 present in forewings .... 8.
No ocelli .... 11.
8. Fork 4 absent in forewings .... **Wormaldia.**
Fork 4 present in forewings .... 9.
9. No closed discal cell in hindwings .... 10.
A closed discal cell in hindwings .... **Philopotamus.**
10. A cross-vein from fork 4 up to median vein; fork 4 arising a long distance before anastomosis .... **Pellopsyche.**
No cross-vein from fork 4 up to median vein; fork 4 arising scarcely width of cell before anastomosis .... **Atopsyche.**
11. Hindwings much broader than forewings; antennæ much longer than wings; all forks present .... 12.
Hindwings barely, if any, broader than forewings; antennæ rarely as long as wings .... 13.
12. Radius runs into subcosta near tip .... **Macronema.**
Radius runs into wing margin, not into subcosta .... **Potamyia.**
13. No closed discal cell in hindwings; fork 1 not present in forewings; mesonotum with a depression in front containing two rounded warts .... 14.
A closed discal cell in hindwings; fork 1 present in forewings; mesonotum without depression .... 15.
14. Middle tibiæ and tarsi of female dilated; third joint of maxillary palpi not longer than the second or fourth .... **Psychomyia.**
Middle tibiæ and tarsi of female not dilated; third joint of maxillary palpi longer than either the second or the fourth .... **Tinodes.**
15. Two spurs to tibia I; size large .... **Arctopsyche.**
One spur to tibia I; size small; (according to figure) no costal cross-vein. **Smicridea.**

Hydropsyche oslari n. sp.—Head dark brown, sparsely clothed with white hair, some black on hind part of vertex; palpi dark brown, with brown hair; antennæ yellowish, spirally annulate with brown, scarcely as long as wings; thorax brown, with short, white hair in middle, longer yellow hair at base of wings; abdomen brown, apex yellowish; legs pale yellow, with white and yellow hair. Wings brown, densely irrorate with white, a subapical part with few marks, apical fringe dark, with several white spots, fringe at outer anal angle black; hing wings faintly gray, with gray fringe. In hind tibiæ the subapical spurs are beyond end of second third; in middle tibiæ the subapical spurs are plainly before middle and scarcely more than their length beyond base. Expanse 20 mm.

Several specimens from southwestern Colorado, July 16th (Oslar).

Hydropsyche hageni n. sp.—Head black, some brown hairs on face, grayish white above, a tuft of brown hair each side behind near eye, palpi brown; antennæ pale, spirally annulate with brown; thorax with whitish hair in the middle, and a large tuft of long, brown hair each side at base of the forewings; abdomen pale on base, brown toward tip; legs pale, rather darker toward tips, especially in anterior pair. Wings brown, darkest along the veins, irrorate with white, pterostigma brown, and a dark brown spot near upper tip of the first apical cell; hind wings gray hyaline, brown on tip. Male has eyes large, and scarcely their diameter apart. On the middle legs the preapical spurs are a little nearer to base than to tip, on the hind legs the preapical spurs are nearly twice their length before the tip. Wings much like *H. scalaris.* Expanse 17 mm.

Several specimens from Falls Church, Virginia. Readily separated from *H. scalaris* by the large eyes of the male.

Hydropsyche slossonæ n. sp.—Head brown, with a transverse brush of brown hair just below base of antennæ, vertex with gray hair, and a tuft of brown each side behind; palpi brown; antennæ pale, spirally annulate with brown; thorax black, mesoscutellum yellowish, some pale hair in middle, dark at bases of wings; abdomen black above, brown below; legs pale, rather darker on the tibiæ. Wings brownish, densely irrorate with whitish, the larger brown patches being along the apical margin; hindwings grayish. In the male the eyes are fully one and one-half their diameters apart. On the hind tibia the preapical spurs are at the base of the outer third; on middle tibia they are much nearer to the base than to tip, in fact only about ther length from the base. Wings rather long and slender; first apical cell twice as long as its pedicel, fork 3 with a pedicel more than twice as long as pedicel of fork 2. Expanse 22 mm.

One pair from Franconia, New Hampshire (Mrs. Slosson).

Hydropsyche cockerelli n. sp.—Head brown, with a transverse brush of brown hair below base of antennæ, vertex with whitish hair; palpi pale brown, tips paler; antennæ pale, spirally annulate with brown; thorax black, pale hairs in middle of mesothorax, abdomen dull black above, brown below, genitalia yellowish, with a black spot near the middle of each lower appendage; legs pale yellowish. Wings brown, darker on anal region than elsewhere, densely irrorate with small yellowish spots; hind wings grayish, fringe blackish. In male the eyes are a little more than diameter apart. In the hind legs the preapical spurs are at the base of the outer third on the tibia, on the middle legs the preapical spurs are somewhat before the middle of the tibia, but plainly more than length from the base. Forewings of moderate length, first apical cell fully twice the length of its pedicel, fork 3 with a pedicel scarcely twice as long as that of fork 2. Expanse 23 mm.

Several specimens from Pecos, New Mexico, June 26th.

Hydropsyche bifida n. sp.—Pale brown, head with yellowish and gray hairs above; palpi pale brown; antennæ pale, spirally annulate with brown: legs pale yellow; thorax brown, grayish in the middle above; abdomen pale, with a black stripe on each side. Wings pale brownish hyaline, indistinct darker spots along the outer margin, clothed with yellowish and blackish hairs; hind wings paler, and with long pale gray fringe. Head of male broad, the eyes widely separated; middle tibiæ with the preapical spurs much before middle, scarcely beyond first third; in the hind legs the preapical spurs are at about end of second third, one and two-thirds their length before the tip. The wings are moderately slender and of usual venation. Expanse 16 mm.

One pair from Ft. Collins, Colorado.

Readily known by the shape of the upper plate of male genitalia.

Hydropsyche kansensis n. sp.—Pale yellow throughout, face with short white hair; basal joint of antennæ rather reddish, others faintly darker at tips; vertex with short white hair; yellow hair on thorax. Wings pale yellow, clear, with few yellowish hairs, venation yellowish, but the anastomosis and some veins near by are brown; fringe short, mostly dark gray; hindwings pale, with pale venation. Eyes of male rather small; wings elongate, and rather narrow, the third fork with a much longer pedicel than fork 2; antennœ twice as long as wings; subapical spurs on hind tibiæ are at end of second third; subapical spurs on middle tibiæ are at middle, and much more than their length from base. Length 9 mm.

Several from Douglas Co., Kansas, June, July, August (Snow).

Arctopsyche irrorata Bks.—Head dull dark brown, with some yellowish hair; palpi yellowish; antennæ clear yellowish, basal joint brown; thorax and abdomen brown, pleura yellowish; legs pale yellowish, the tibiæ and tarsi very pale. Wings brown, densely irrorate with yellow, mostly in the form of rounded spots, about a dozen of these along the costal region, the brown sometimes forming bands; hindwings gray. Forewings rather long, the radial sector connected to radius beyond the discal cell, fork 1 with a pedicel one-half its length, fork 4 and 5 of about equal length. Expanse 32 mm.

One specimen from Black Mt., North Carolina, June (Beutenmüller).

Holocentropus placidus n. sp.—Head black, above with white hair; palpi brown; antennæ pale yellowish, darker on tips; prothorax with gray hair; mesothorax gray in middle, rest of thorax and abdomen black; legs pale yellowish. Wings often nearly hyaline, barely marked with brown and yellowish spots in apical and anal regions; when fully marked, densely irrorate with brown and yellowish or whitish; mostly in form of narrow irregular bands, a larger spot at arculus, a distinct one at pterostigma, and several others of large size on costal region, also a dark brown one at middle of cubital vein; hindwings dusky, venation darker. Forewings rather slender, discal cell about one-half the length of its pedicel, fork 1 not pedicellate and broad at base; fork 3 with pedicel scarcely one-third its length; fork 4 sometimes absent, its pedicel about twice its length, the median cell thus extremely long. Expanse 14 mm.

Many specimens from Washington, D. C., August.

Polycentropus carolinensis Bks.—Head densely clothed with yellowish gray hair in front, and blackish behind; palpi pale; antennæ yellowish, very strongly crenate within; prothorax with yellowish hair; rest of thorax and the abdomen brown, former with some yellowish hair; legs pale yellowish, tarsi rather darker. Wings uniformly clothed with jet black hair, and with about twenty small snow-white spots, several arranged in an irregular, broken band across wing near middle, two at the pterostigma, one or two at posterior apical angle, one at arculus, and two or three on the apical margin, those in basal part of wing indistinct; a tuft of erect black hair at base of forewings; posterior wings blackish, with darker venation; discal cell slender, as long as its pedicel; fork 1 not as long as its pedicel, fork 3 longer than its pedicel, fork 4 reaching basad of fork 3, but with a long pedicel; fork 5 reaching much farther toward base. Expanse 13 mm.

One specimen from Black Mt., North Carolina (Beutenmüller).

Polycentropus dispar n. sp.—Head black, with black bristles and white hair; palpi brown; antennæ pale, the joints tipped with black; thorax dark, with some black bristles and pale or whitish hairs, mostly on the middle; abdomen yellow-brown; legs yellow, the tibiæ dark, and the tarsal joints dark, except the extreme base of each joint is snow-white. Wings dark, irregularly clothed with dark hairs, in places jet black, forming patches and streaks; the apical part of wings mostly dark, ending in an irregular band, beyond paler; the middle area mostly occupied by a pale triangle; a large pale spot behind anastomosis, containing a black spot; fringe mostly brown, some white patches; hind wings dusky, darker at tips. It agrees quite closely in venation with *Polycentropus* (as restricted by McLachlan); no closed cell in hind wings, and all the forks are present in the forewings, an oblique cross-vein in costal area; but I cannot see any subapical spur on leg 1, in fact I think there is but one at the tip, which is small and appressed to the leg. Expanse 11 mm.

Specimens from Tucson, Arizona, June 5th (Oslar).

Polycentropus arizonensis n. sp.—Face brown, vertex black, with scattered black bristles; palpi pale; antennæ pale yellowish brown; thorax black, with black hair; pleura yellowish; abdomen yellowish on base, brown toward tip. Legs rather bright reddish yellow; spurs pale yellow, the tibiæ on outer side clothed with short black hair. Forewings dark brown, with short black hair, especially along the veins; there are many patches of golden hair, especially along the costa, near pterostigma and on apical margin, and a larger one above the arculus. Hind wings blackish, darkest on costal margin toward tip. Antennæ slightly crenulate on inner side; spurs 3-4-4. Upper branch of radial sector forked fully one-half way out from anastomosis; lower branch of median forked beyond upper branch. Expanse 22 mm.

Specimens from the Huachuca Mountains, Arizona, August 20th (Oslar).

Plectrocnemia auriceps Bks.—Head with much golden hair; palpi yellowish brown, basal joint of antennæ yellowish, beyond dark brown, strongly crenate within; prothorax yellow, with golden hair, and golden tufts on mesothorax in front; thorax and abdomen brown, margins of abdominal segments narrowly yellowish; legs yellow, hind tibiæ brown. Wings brown, densely marked with patches of golden hair between the veins, which are brown; a larger spot at the arculus; fringe golden, interrupted with brown at tips of the veins; discal cell not one half as long as its pedicel, fork 1 not pedicellate, fork 3 with a pedicel not one-half its length; hindwings blackish. Expanse 27 mm.

One male from Black Mt., North Carolina (Beutenmüller), June.

Cyrnus fraternus n. sp.—Head with whitish hair in front, brown from the posterior warts; palpi brown; antennæ pale yellowish, narrowly annulate with brown; thorax and abdomen brown, former with yellowish and gray hair; legs very pale yellowish. Wings uniformly pale brown, clothed with yellowish and black hair; fringe mostly black, especially so at outer apical angle; hindwings dusky, fringe dark. Forewings rather long and narrow; fork 3 has a pedicel nearly as long as self, fork 4 but little longer than 3. Expanse 10 mm.

Several specimens from Plummer's Island, Md., August.

Differs from *C. pallidus* in larger size, in longer fork 3, in darker color, and in genital parts.

ATOPSYCHE n. gen.

A Hydropsychid near *Philopotamus*; spurs 2, 4, 4, three distinct ocelli, both branches of median vein forked, and the forks very long. Differs from *Philopotamus* in that the discal cell is long, and placed before middle of wing, the apical cells all being remarkably long. In hindwings the discoidal cell is not closed. The maxillary palpi are slender, the last joint nearly as long as the preceding one. There is a median elevation upon the face.

Type.—*A. tripunctata.*

Atopsyche tripunctata n. sp.—Head brown, face with black bristles and some white hair intermixed. A tuft of gray hair between antennæ and one on middle of vertex behind; basal joints of the antennæ black, others brown, tipped with pale. Mesothorax brown, with tufts of black bristles and white hairs. Metathorax paler; abdomen pale, darker above than below; legs pale: anterior femora dark; fore and middle tibiæ dark, with a yellow band just beyond middle, and a yellow tip; basal tarsal joints dark. Wings brown, with long black bristles on veins, semi-erect; scattered over the surface, mostly in apical part, are many white hairs in patches, elsewhere brown and black hairs; pterostigma very heavy and dark, a pale spot at base and another at tip; pale spots on apical fringe at end of each vein. In the membrane of wing are three narrow hyaline spots, one on arculus, one on median vein just before the connection to cubital, and one on forking of lower branch of median and extending upward to the anastomosis. Fringe at outer apical angle rather long and black. Hind wings dusky, darkest at tips, fringe blackish and quite long on hind margin. The forewings are rather slender, the apical margin oblique; the discal cell is more than twice as long as broad and ends under base of pterostigma, the apical cells much longer than width of wing at widest part; the upper branch of radial sector forks just under tip of pterostigma; the forking of lower branch of median is under the anastomosis, that of upper branch one-third the way out. The abdomen of the female shows on the under side near tip two prominent median spines, arising from the second and third segment before tip. Expanse 24 mm.

One specimen from the Huachuca Mountains, Arizona, August 22nd, 8000 feet (Oslar).

Wormaldia mediana n. sp.—Head brown, with yellow hair; ocelli small, but distinct, a dark brown, obliquely transverse wart each side on vertex, palpi dark brown, last joint slightly longer than preceding, and a trifle curved; antennæ yellowish, brown toward tips; prothorax dark brown; thorax paler brown, all with yellow hair; abdomen brown above, yellowish beneath; legs pale yellowish, with brown spurs. Wings brownish, sparsely clothed with short golden hair, the anastomosis and the veinlet connecting median to cubitus at base of thyridial cell are hyaline-white; venation brown; hindwings dusky, with gray hair and fringe. In forewings forks 1 and 2 reach discal cell, fork 3 long-pedicellate, fork 5 not reaching connecting veinlet to median; a straight cross-veinlet in middle of costal area, and an oblique cross-veinlet from discal cell to radius. Length 7 mm.

One specimen from Chinandega, Nicaragua (Baker).

NOTIOMYIA n. gen.

A Leptocerid; spurs 2–4–4; palpi upcurved; basal joint of antennæ rather short; no ocelli; discal cell of forewings very indistinctly closed, if at all; a long furrow through the forewing much as in *Scelis*. Venation as figured.

Type.—*N. mexicana* Banks (sub Heteroplectron).

Notiomyia mexicana Banks.—Black throughout, except the abdomen and the prothorax above and below which are reddish yellow. Antennæ nearly twice as long as the wings; vertex long, with a median carina, a crest of bristles above base of antennæ, an elongate wart each side near posterior margin crowned with erect bristles, elsewhere the vertex is smooth. Legs rather long, spurs rather short, the preapical pair on middle tibiæ at about middle, those of hind tibiæ near end of second third; hind tibiæ scarcely as long as femora, middle tibiæ much shorter than femora; basal joint of hind tarsus as long as rest of joints together. Wings clothed with black hairs, and in apical part many small glittering scale-like hairs; the furrow in forewings furnished with black hair. Expanse 26 mm.

Two specimens from Huachuca Mountains, Arizona (Oslar).

Similar to the type from Mexico, but in better condition, so I give another description.

Setodes floridana n. sp.—Head yellowish, clothed with golden hair; palpi clothed with gray hair; antennæ pale, narrowly annulate with brown; thorax pale, with golden hair; legs pale yellowish; abdomen yellowish. Wings gray, clothed with short golden hair and some black hair intermixed, the anastomosis and extreme tip darker, fringe black at tip, elsewhere gray; hindwings dusky hyaline, scarcely darker at tip, fringe very long, gray. Both pairs of wings very long, slender and acute. Expanse 13 mm.

One specimen from Biscayne Bay, Florida (Slosson).

Leptocella texana n. sp.—Head yellowish, clothed with snow-white hair; palpi brown, with white hair; antennæ white, broadly annulate with black, apical part wholly black, basal joints yellowish; thorax yellowish, with short white hair through the middle; abdomen yellowish; legs pale yellowish. Forewings white, veins bordered with yellow-brown or brown, especially prominent beyond the anastomosis, anterior and posterior margins more or less brown, several brown spots at pterostigma; fringe gray; hindwings pale gray, with pale venation and gray fringe. Forewings hardly as narrow as in other species, the discal cell swollen above toward apex, but not as much so as in *L. exquisita* and allied forms, the first apical cell with a pedicel as long as cell, the fourth apical cell with a pedicel almost as long. Expanse 22 mm.

One specimen from San Antonio, Texas, August.

Leptocella exilis n. n.

L. gracilis Banks, Trans. Amer. Ent. Soc., xxx, p. 110, 1904.

As there is a previous *gracilis* in this genus I rename this species.

Aniscentropus fuscus n. sp.—Head subglobose, black, densely clothed with short white hair; antennæ very long, white, annulate with black, basal joint large and as long as vertex; palpi long, hairy, upcurved, gray, last joints recurved. Thorax convex, brown, clothed with appressed white hair; abdomen brown; legs pale yellowish, the hind femora at base blackish, tips of tarsi brown. Middle legs much the longest, spurs 1–4–2, the subapical pair on middle tibiæ near base. Wings clothed with white and brown hairs forming a gray appearance, a black basal spot, one near middle of hind margin, one at base of discal cell, an elongate spot at lower end of discal cell, a spot at end of pterostigma, and extreme apical margin black, extending up on veins, fringe blackish; hindwings smoky, darker on costal margin toward tip, posterior fringe rather long, gray. Forewings narrow, elongate, sides subparallel, fifth apical cell with a long pedicel; hindwings narrow, closed discal and thyridial cells, the former connected by cross-vein to radius. Expanse 15 mm.

Two specimens from Phoenix, Arizona.

EXPLANATION OF PLATES.

PLATE I.

Fig. 1. *Embia californica*, dorsal view of insect.
" 2. *Hydropsyche oslari*, genitalia of male.
" 3. *Colpotaulius medialis*, ♂ side, ♀ ventral view.
" 4. *Hydropsyche slossonæ*, genitalia of male from above.
" 5. *Polycentropus dispar*, tip of abdomen from above
" 6. *Hydropsyche hageni*, upper plate of male genitalia.
" 7. " *slossonæ*, genitalia of male.
" 8. " *cockerelli*, genitalia of male
" 9. " " male genitalia from above.
" 10. " *hageni*, head from in front
" 11. " *scalaris*, male genitalia from above.
" 12. " *hageni*, male genitalia and tip of penis.
" 13. " *scalaris*, male genitalia.
" 14. " *bifida*, male genitalia and upper plate.

PLATE II.

Fig 15. *Notiomyia mexicana*, wings and maxillary palpus
" 16. *Perla valida*, venter of female.
" 17. *Gœra fuscula*, genitalia of male.
" 18. *Sphinctogaster lutescens*, forewing and palpus.
" 19. *Namamyia plutonis*, forewing and palpus.
" 20. *Notiopsyche latipennis*, forewing.
" 21. *Atomyia modesta*, forewing
" 22. *Perla carolinensis*, venter of female.
" 23. " *californica*, venter of female.
" 24. *Plectrocnemia auriceps*, male genitalia.
" 25. *Atomyia modesta*, tip of abdomen from above.
" 26. *Arctopsyche irrorata*, genitalia of male.
" 27. *Notiopsyche latipennis*, genitalia of male.

A REVISION OF THE NEARCTIC HEMEROBIIDÆ.

BY NATHAN BANKS.

(Plates III-V.)

The Hemerobiidæ are similar in general structure to the Chrysopidæ; however, they differ strikingly in several respects. They are brownish in color, while the Chrysopidæ are green; they are much less common than the latter family in specimens, yet the species are as numerous; there is much greater dissimilarity among them in structure and habits than among the Chrysopidæ. None have been observed to emit the disagreeable odor common to many Chrysopas.

They differ structurally from the Chrysopidæ in having a much shorter pronotum, being broader than long, in having fewer cross-veins in the wing, almost all represented in the two gradate series, so that the cells are often four to six times as long as broad, while in the Chrysopidæ the cells are rarely more than twice as long as broad. The latter family has always but one radial sector, which is connected back to the radius by at least six cross-veins, while in the Hemerobiidæ there are usually several radial sectors and when but one it is connected back to the radius by not more than four cross-veins. The difference upon which the family was based is that the antennæ are moniliform, that is, the joints are of nearly equal size throughout; while in the Chrysopidæ the antennæ are setaceous, that is, the joints taper toward the tip. Except one species, they are of smaller size than the allied family.

At rest the wings are held roof like over the body. Their flight is slow, and often irregular I have never observed any flying in bright sunshine (unless disturbed), however, at twilight or in cloudy weather they become active, and at night are attracted to lights. The adults have not been observed to take any nourishment, and probably do not live more than a week or two, except during winter. Several of the common species of *Hemerobius* evidently hibernate in the adult condition, as the flies are taken in late fall and early spring; others probably winter in the pupal condition.

At least five of our Hemerobiids occur also in Europe; four of these are sub-boreal species. Several others are closely allied to European species. Most of our genera occur in Europe; so it is probable that our Hemerobiid fauna has a common origin with the European. As a whole they are more numerous in the north, both in species and in specimens. A number of species favor pine trees.

There are no secondary sexual differences, save in the genera *Dilar* and *Psectra*. The male genitalia are usually more highly developed than in the Chrysopidæ, and in several of our large genera these characters are of the utmost importance in the separation of species.

The larvæ are all (as far as known) predaceous, and have their mouth-parts modified, as in the Chrysopidæ, for the purpose of sucking up the juices of their prey. The larval head, however, is not as large, and the body tapers forwards so that they are spindle shaped. The larvæ of two genera (*Climacia* and *Sisyra*) are aquatic. That of *Sisyra* was discovered by Hogg in 1839 in fresh water sponges. Three years afterward Westwood described it as *Branchiostoma spongillæ*. It possesses jointed respiratory filaments attached to the under side of the abdominal segments. Mr. Needham has published an account of the habits and transformations of these forms in Bull. No. 40, New York State Museum. The cocoons are made above water, and consist of a dense inner case, surrounded by a much larger loose network. The flies emerge in summer.

I have reared *Micromus posticus* from the larva, which is not uncommon on trees, feeding on plant lice. It is naked, fusiform in shape, pale brown in color, and has a large white spot on each side of the mesothorax and metathorax. It spins a nearly spherical cocoon of white silk, and transforms to the adult in ten days.

The larvæ of *Hemerobius* appear to be much less known than allied forms; I have not bred any, but a larva given me by Mr. Schwarz probably belongs to this genus; it has a broader head, a shorter body than *Chrysopa;* and the lateral processes of thorax are very long; this specimen was taken among fallen leaves and carried the empty shells of several small mollusks.

The European forms of this family have never been reviewed; McLachlan about 1870 published on the British species, and a few years since treated of certain species of *Hemerobius*. A general revision of the European species would be of great value to the American student.

The Hemerobiidæ were formerly united to the Chrysopidæ in one family. The restricted family has commonly been divided into three groups. One of these is based on the peculiar genus *Dilar*. Another (Osmylinæ) has often been separated by having but one radial sector, while the true Hemerobiinæ have two or more sectors. This, I consider, a poor character, since the number of radial sectors varies in the species and in the opposite wing of the same specimen. Therefore I have separated the two groups on the point of termination of the subcosta; whether it ends in the margin of the wing (Hemerobiinæ) or whether it runs into the radius (Sisyrinæ). This makes a slightly different alignment, and I think more natural. We do not have the genus *Osmylus* in this country, and I expect that it, together with various allied exotic genera, will form another subfamily. Our eleven genera are based almost wholly on venational characters; while specific characters are also found in the venation, the shape of wings, the male genitalia, and to a less extent in coloration. The pattern of coloration is usually constant for each species, but the extent of its development varies greatly; too much stress has been laid upon the markings by many authors. Striking differences in markings, unaccompanied by structural differences, should be looked upon with much suspicion.

This paper is based principally on my own collection, but I have had free use of the material in the National collection, and, through the kindness of Mr. Henshaw, have examined the material in the Museum of Comparative Zoology at Cambridge containing nearly all of the Fitch types.

The three subfamilies known to occur in our country may be tabulated as below:

SYNOPSIS OF SUBFAMILIES.

1. Male with pectinate antennæ; female with an exserted ovipositor...DILARINÆ.
Antennæ not pectinate in either sex; female without exserted ovipositor...2,
2. Subcosta runs into radius near pterostigma; usually but one radial sector, at least none arising beyond basal third of wing.............SISYRINÆ.
Subcosta runs into margin of wing; normally at least two radial sectors, the last beyond basal third of wing....................HEMEROBIINÆ.

DILARINÆ.

Contains but the one genus—*Dilar*.

DILAR Rambr.

Antennæ of male pectinate; female with an ovipositor, commonly as long as body; vertex of head with three tubercles resembling ocelli. Wings entire; four or more radial sectors; subcosta ends in margin; no recurrent vein; gradate veins irregular.

Type.—*D. nevadensis* Rbr.

I have never taken our one species, which does not appear to have been collected since its description.

Dilar americanus McLachlan.—"Body whitish, with a faint yellowish tinge, clothed with whitish hairs, with which a few black hairs are intermingled. Face yellowish. Eyes metallic-silvery. On the head above are three very large, somewhat closed placed, rounded-oval tubercles. Antennæ concolorous with the body, apparently 17-jointed, the joints short, somewhat moniliform, not toothed internally at the apex, the terminal joint ovate. Legs whitish, with white hairs; the tips of the femora, tibiæ and tarsi testaceous; claws minute, simple, piceous. Apex of the abdomen forming an elongate pyriform opening, in the middle of which are two large rounded, whitish, finely granulose tubercles (extraneous bodies ?); ovipositor longer than the entire body in the dry insect, yellowish white, semi-transparent, slender, slightly curved. Wings pale whitish hyaline, each with about twenty rather large greyish spots, some of which, in the apical half of the wing, show a tendency to unite into fasciæ; neuration pale, darker in the spots, hairs long, whitish, but mixed with blackish, especially on the spots; subcostal area almost without transverse nervules; costal veinlets simple, with faint indications of marginal rudiments between them; principal sector with five branches in both pairs; transverse nervules very few, so that the neuration is remarkably open; a discal horny point between the first and second branches of the sector; nearly all the apical and marginal nervures, bifurcate or trifurcate, with minute marginal rudiments;

Female.—Length of body (without ovipositor) about 3 mm; length of ovipositor about 3½ mm. Expanse of wings about 14 mm."

Described from "one female example (not in very good condition) taken by Mr. Sanborn at Bee Spring, Kentucky, in June, 1874."

McLachlan says that with the South American species this may form a separate genus on account of more open venation, and one (many branched) sector to the radius; in the European species there is a simple sector arising before the branched one.

I have seen the type in the Museum of Comparative Zoology at Cambridge. The radial sector has five forks, and is connected back to radius three or four times: the median vein is simple until near the tip of wing where it is forked; the upper cubitus forks at middle and is connected to median twice; the lower branch of cubitus and the anal vein have several branches running into the posterior margin.

SISYRINÆ.

SYNOPSIS OF GENERA.

1. Ten or more branches to radial sector; and a submarginal series of cross-veinlets; a recurrent vein at base; large species.....**Polystœchotes.**
   About five or fewer branches to radial sector; no submarginal series of cross-veinlets; no recurrent vein; smaller species.................... 2.
2. Apical margin of wing plainly excised; about five branches to radial sector. **Lomamyia.**
   Apical margin entire; about two branches of radial sector................ 3.
3. Radial sector with but one branch; in hindwing the subcosta runs into radius much before the pterostigma........................**Climacia.**
   Radial sector with two branches; in hindwing the subcosta runs into radius at the pterostigma ....**Sisyra.**

SISYRA Burm.

Wing entire; the subcosta runs into the radius near pterostigma in both wings; but one radial sector; costal area narrow at base; the costal veinlets simple; no recurrent vein; no gradate series, the few cross-veins very irregular in position; median vein forked several times. Last joint of palpi (especially labial) much swollen.

Type.—*S. fuscata* Fabr.

Sisyra vicaria Walker.—Head shining, pale yellow; vertex hairy; antennæ pale brownish; second joint dark brown; legs pale yellow; thorax yellow-brown; abdomen brown. Wings brown; venation dark brown; more or less indication of a darker streak between the veins; hindwings scarcely darkened, costal area dark; venation brown. Wings in male shorter than in female, rather hairy, broadly rounded at tips; narrow at costal margin at base; costal veinlets simple; one radial sector, with four branches; no gradate veinlets, a few cross-veinlets in basal part of wing; fringe short; hindwings with one radial sector, with three branches. Expanse 11–13 mm.

Specimens from near High Island, Maryland (near Washington, D. C.), June 17th and 25th, and July 14th; Mosholu, New York, September 1st; Lake Forrest, Illinois, June; Ithaca and Saranac, New York, June; also Detroit, Michigan, and Kaslo B. C. (Currie). The types were from Georgia.

Mr. Needham's *S. umbratus* (of which I have several co-types, kindly sent me by him) does not appear to differ in any important point; it is rather larger and darker. The Mosholu specimen is very dark and as small as any Washington specimen. I do not have males of *S. umbratus*, but figure the genitalia of *S. vicaria*: perhaps there may be differences in this respect.

CLIMACIA McLach.

Antennæ moniliform; subcosta of both wings runs into radius near pterostigma; but one radial sector; costal area of forewings very narrow at base, the veinlets simple, and no recurrent vein; two short, broken, gradate series in the forewings, only one in hindwings; the median vein is forked but once; margin of wing even; last joint of palpi not much swollen.

Type.—*C. areolaris* Hagen.

Climacia areolaris Hagen.—Head uniform, shining yellowish brown; antennæ dark brown; thorax yellowish brown, pleura black; abdomen dark brown; legs pale yellow. Wings yellowish hyaline; two large dark brown patches, one near base between subcosta and radial sector, and an oblique mark from the inner end of the pterostigma to near the middle of wing, between the ends of these marks and obliquely backward across the wing the veins are dark brown, and have dark lines between them: the radial sector and median continue dark, but the other veins are suddenly pale for a short distance and then all are dark again, in this part of the wing there are dark marks between the veins; there is a dark spot on middle of hind margin (often indistinct), and a small one at tip of the pterostigma; hindwings with a dark spot before and a smaller one after pterostigma; venation partly brown.

The head is rather full and round; the antennæ are heavier than usual; the wings are slender. The costal area is narrow at base, the costal veinlets not forked, and the two short gradate series run slightly outward; the radial sector is connected back to radius three times. In the hindwings there is one radial sector, giving off two branches; pterostigmatic region of both wings heavily veined. Expanse 9–10 mm.

Specimens from Shreveport, Louisiana; Plummer's Island, Maryland, August 24th (Busck); Franconia, New Hampshire (Slosson); and Orono, Maine (Harvey). It has also been recorded from Florida, Texas, Massachusetts and Saranac Mountains, New York. Needham bases his species (*C. dictyona*) on larger size (which is variable), on darker color (which also varies), and on the seven branches of cubitus. He says that the specimens in the Museum of Comparative Zoology have six branches; nearly all the specimens I have seen have but five branches; it is evident therefore that this character varies.

LOMAMYIA n. gen.

Antennæ moniliform; subcosta runs into the radius at pterostigma; no recurrent vein; one radial sector, which is connected back to radius twice, and gives off five branches; only one gradate series, which starts under the pterostigma and runs obliquely basad;

costal veinlets branched; outer margin of forewing concave, hindwing barely so; in hindwings one cross-veinlet below the pterostigma, and three near posterior margin; the radial sector with four branches.

Type.—*L. flavicornis* Walk.

Differs from *Isoscelipteron* Costa in having the subcosta end in the radius, and the fewer branches of radial sectors, as well as minor points. I have not seen the type of *Berotha* Walk., which is from India, but judging from the description it is a different genus from ours. I know but two species.

1. Apical margin sinuately concave, and with the hind margin sinuate before outer angle........................... ... .**flavicornis.**
   Apical margin evenly concave........ .. ..**texana.**

Lomamyia flavicornis Walker.—Face brown, vertex pale, with dark dots; antennæ pale yellow, the basal joints with a few brown spots; prothorax yellowish, dotted and spotted with brown, rest of thorax dark brown; abdomen brown; legs yellowish, with brown spots and dots. Wings hyaline, venation pale, with brown dots, transverse veins entirely brown; some larger spots at forks of veins in apical part of wing, margin mostly brown, but with some patches of white, two in the concave part; pterostigma brown; hindwings with apical venation and pterostigma brown. Forewings falcate at tips, apical margin sinuately concave, and the posterior margin slightly concave before outer angle; five branches to radial sector. Expanse 22–24 mm.

Specimens from Falls Church, Virginia, July 4th; Prospertown and Lakehurst, New Jersey, May 25th. Walker's specimens came from Georgia, and Hagen records it from Washington, D. C.

Lomamyia texana Banks.—Face yellowish, vertex spotted with brown; antennæ pale yellow; prothorax short, brownish, rather densely clothed with brown bristles; abdomen brown; legs pale, with scattered dark dots, and clothed with gray hair and black bristles. Wings tinted with brown; venation brown, dotted with white; there are many scattered round brown spots, each centered upon a vein; along the costa are are several large dark brown spots, and the pterostigma is dark brown; the apical margin is brown, interrupted with white; gradate veinlets and the basal cross-veinlets heavily dark brown; hindwings hyaline, pterostigma brownish, the cross-vein below it margined with brown. The outer margin of forewings is evenly and deeply concave, not at all sinuate; there are five branches of the radial sector; in hindwings with four branches; margins of both pairs are fringed. Length 9–12 mm.

Specimens from Texas; Phoenix, Arizona, and Ormsby County, Nevada, July.

POLYSTŒCHOTES Burm.

Wings entire; subcosta runs into radius near pterostigma in both wings; in both pairs a recurrent vein at base; the costal veinlets forked near tip; one radial sector, with from ten to twenty branches, which are nearly always simple until the outer gradate series; two very oblique gradate series in both wings; median vein forked several times.

Type.—*P. punctatus* Fabr.

Polystœchotes punctatus Fabricius.—Face yellowish; dark brown between eyes and on the vertex; antennæ brownish, the second joint and sometimes the first dark brown; palpi marked with brown; thorax and abdomen brown; pronotum with four pale streaks; legs yellowish, femora streaked on the outer side, and tips of tibiæ brown; tarsi mostly brown, except basal joint is often yellowish. Wings hyaline, venation interruptedly brown and yellowish; the gradate series mostly brown, and often partly margined with brown; a large brown patch on inner gradate series at first branch of radial sector and median vein: the median also heavily marked at end of outer gradate series; margin of wing with alternate patches of brown and whitish, a few brown spots between radial sector and radius; one long one near tip of wing; sometimes a large patch on anal veins at margin, and the anal veins often crossed by several wavy brown bands; hindwings with the costal margin and the posterior fringe alternately white and brown; venation mostly brown, the costal veins interrupted with pale. Wings rather acute at tip, broad in middle, entire; costal area rather narrow at base, but with a long recurrent nervure; one radial sector with twelve to eighteen branches, mostly simple to the outer gradate series, where they are forked several times; two very oblique gradate series, the outer one is parallel to the apical and hind margin. Body and legs very hairy. Expanse 40–75 mm.

All over the northern half of our country and extending southward in the mountains, as into North Carolina, New Mexico and Arizona; more common in the northwest than elsewhere. Very variable in size and somewhat in markings. It is strange that the larva of this, our largest Hemerobiid, is unknown; perhaps it is parasitic in some aquatic insect.

HEMEROBIINÆ.

SYNOPSIS OF GENERA.

1. A recurrent vein at base of forewings .... 2.
No recurrent vein at base of forewings .... 5.
2. More than four radial sectors .... **Megalomus.**
Four, or fewer, radial sectors .... 3.
3. No outer cross-veinlets in hindwings, only four, or less, in outer gradate series of forewings; usually but two radial sectors; a cross-veinlet connecting first radial sector to median; the median is usually a little bent

toward the cubitus at connecting veinlet; in hindwings the median usually forks plainly beyond forking of radial sector; small species. **Sympherobius.**

Outer cross-veinlets present in hindwings; more than four veinlets in outer gradate series in forewings; usually three or four radial sectors....4.

4. A cross-veinlet connecting first radial sector to median some distance out on the former; often four radical sectors; the median is rarely bent toward the cubitus at connecting veinlet; in hindwings the first radial sector forks as far out as forking of median; larger species. **Boriomyia.**

The cross-vein from median to radius is before or at origin of radial sector, never out upon it; three, rarely four, radial sectors; the median is more or less bent toward cubitus at connecting veinlet; in hindwings the median is forked farther out than fork of first radial sector. **Hemerobius.**

5. But one radial sector, and but one series of gradate veinlets ......**Psectra.**

Several radial sectors, and two series of gradate veinlets ......**Micromus.**

HEMEROBIUS Linn.

Antennæ moniliform; wings entire; subcosta ending in margin; costal area quite broad at base; with a recurrent nervure; costal cross-veins branched; two series of gradate veinlets in both pairs of wings, the outer in forewings of more than four veinlets; no cross-vein connecting first radial sector to median; three or four radial sectors; the median is bent more or less toward the cubitus at connecting veinlet; in hindwings the median is forked farther out than fork of first radial sector.

Type.—*H. humuli* Linn.

The type of *Mucropalpus* Rambur is *M. lutescens* Rambur (nec. Fabricius), and is the same as *H. humuli.*

The *Hemerobius* of Linné covered everything in this family and the Chrysopidæ, as well as other forms; gradually it has been restricted, and I have now divided in into three genera, retaining the name for the best known section. The custom of years has fixed the name, although several earlier authors used it for *Chrysopa*. In correspondence with Prof. Klapalek, who has kindly furnished me with many European species, I find that this division of the genus will apply to the European species as follows: *Hemerobius* (s. str.): *humuli, micans, atrifrons, nitidulus, stigma, limbatellus, lutescens, orotypus; Boriomyia: concinnus, 4-fasciatus, subnebulosus, nervosus; Sympherobius: elegans, parvulus, inconspicuus.*

SYNOPSIS OF SPECIES.

1. Basal cross-vein connecting median to radius ends upon radius near to connecting veinlet between radius and subcosta, and is shorter than distance out to first radial sector.......................2.
   Basal cross-vein ends near first radial sector, at least not more than its length therefrom.......................6.
2. Last veinlet of inner gradate series below or basad of the previous one (rarely a little beyond it); pterostigma, especially of hindwings, usually distinctly rufous; forewings more narrow.......................3.
   Last veinlet of inner gradate series distinctly beyond previous one; pterostigma barely, if at all, rufous; forewings broader.......................5.
3. Eastern specimens.......................**stigmaterus.**
   Western specimens.......................4.
4. The second radial sector arises much nearer to the third than to the first. **kokaneeanus.**
   Radial sectors at subequal distances at origin.......................**mœstus.**
5. Eastern specimens.......................**humuli.**
   Western specimens.......................**pacificus.**
6. Practically no markings, except dots along the veins.......................7.
   With larger spots and bands.......................8.
7. Smaller, pale species, three radial sectors.......................**hyalinatus.**
   Larger, darker species, usually four radial sectors.......................**dorsatus.**
8. The second fork of cubitus beyond basal connecting veinlet is almost as near to the first fork as to the third; the last veinlet of inner gradate series is beyond the previous one.......................**cockerelli.**
   The second fork of cubitus beyond basal connecting veinlet is much nearer to the third than to the first; last veinlet of inner gradate series usually below or basad of previous one.......................9.
9. Face blackish; apical margin of wing not marked with patches of white and dark.......................**conjunctus.**
   Face pale, apical margin of wing marked with large patches of white and dark.......................**nevadensis.**

Three species are not included in the above table.

H. simplex differs from *H. stigmaterus* and *H. mœstus* by smaller size and different genitalia.

H. marginatus differs from *H. humili* in having a broader costal area.

H. simulans differs from *H. humuli* in more slender wings and in being more heavily marked.

Hemerobius stigmaterus Fitch.—Head pale yellow, a reddish brown stripe each side from near eye to mouth; antennæ pale yellow; palpi marked with red-brown; thorax with a broad median yellow stripe, and a red-brown stripe each side; abdomen brown, often yellow at tip; legs pale yellowish. Wings hyaline, venation yellow, dotted with brown, from which arise angular brownish fascia upon the membrane of wing; the gradate veins brown, and the veinlet connecting median and cubitus heavily brown; pterostigma brown, distinct; around the margin are scattered brown dots. In the hind wings the venation near tip is brown, and the pterostigma is very prominent, being reddish brown. The median is plainly bent toward the cubitus at the connecting veinlet; the gradate series are full and even; the costal space at base is moderately broad. In hindwings the first fork of radial sector is plainly before the fork of median Expanse 16–18 mm.

Many specimens from Ithaca and Sea Cliff, New York; Washington, D. C.; Agricultural College, Michigan; St. Anthony's Park, Minnesota; Central Missouri; Iowa; and Douglas County, Kansas. In April and May, and again from August till October. It is closely allied to the European *H. pini*. I have seen the type in the Museum of Comparative Zoology at Cambridge, Mass.

Hemerobius kokaneeanus Currie.—Head dark, blackish on clypeus; thorax black on sides, paler in middle; abdomen dark; legs pale. with faint indication of dark bands at tips of femora and tibiæ. Wings hyaline, considerably marked with brown, especially along apical and posterior margin; the gradate series margined, and a large spot on basal cross-veins; white spots along the margin, pterostigma faintly reddish, venation with dark and pale spaces, but cross-veinlets are wholly brown; hindwings smoky, venation mostly dark. Wings slender; costal area narrow toward base, median plainly bent toward cubitus at connecting veinlet; three radial sectors, the second arising much closer to the third than to the first; last veinlet of inner gradate series basad of the previous one; in hindwings the radial sector forks before forking of median. Expanse 14 mm.

One specimen, female, in bad condition, taken on Kokanee Mt., British Columbia, at an altitude of 9000 feet, on August 10th, by Mr. Currie. The specimen is in the National Museum. In shape and venation it is like *H. mœstus*, except for the peculiar position of the second radial sector (not noticed by Mr. Currie). *H. mœstus* varies much in markings, but always differs in pale hindwings.

Hemerobius mœstus Banks.—Head pale, a brown stripe below each eye, antennæ and legs pale, thorax pale, hardly brown on the sides. Abdomen rather obscure brown. Wings hyaline, venation pale; with scattered light brown dots, alternate brown and pale dots around margin; gradate veins brown and margined with brown; pterostigma reddish in both pairs of wings; hindwings not marked, venation pale. Wings rather narrow, costal area narrow toward base; median much bent toward cubitus at connecting veinlet; no veinlet connecting median and first radial sector; three sectors, the upper branch of third forked just before inner gradate series, lower branch simple; last gradate veinlet of inner series below or basad of the previous one. Expanse 15–17 mm.

Numerous specimens from various western localities; Olympia and Pullman, Washington; Idaho; Clear Creek, Colorado (Oslar);

Ormsby County, Nevada (Baker); Mesilla, New Mexico; Williams and Bright Angel, Arizona (Barber); Humboldt County, Los Angeles County and Lake Tahoe, California, and Kaslo, British Columbia (Currie). Taken from May to July.

Hemerobius simplex n. sp.—Head yellowish, shining, black under eyes, antennæ pale yellow; thorax pale yellow in middle, brown on sides; legs pale yellowish; abdomen brown. Wings hyaline, veins slightly marked with brown dots, and brown dots around margin of wing, the gradate veinlets brown, pterostigma fairly distinct, rather reddish. Wings rather narrow, three radial sectors, neither first nor second connected back to radius, but third is at or beyond first fork, costal area at base rather narrow, last gradate of inner series basad of previous one, median vein bent toward cubitus so that connecting veinlet is short, one-half as long as from cubitus to anal; three branches from cubital cell below. In hindwings the fork of radial sector is much before fork of median. Length 13–14 mm.

Two specimens, one from Prescott, Arizona, the other from Senator, Arizona (both Oslar), in May and June. Separated from *stigmaterus* and *mœstus* by smaller size and different male genitalia.

Hemerobius humuli Linn.—Head pale yellow, a red-brown stripe from each eye to mouth; antennæ yellowish; thorax with a broad median yellow stripe and red-brown lateral stripes; abdomen brown, legs yellowish. Wings hyaline, venation pale, marked with brown, rather evenly; the gradate series are more heavily brown and have more brown on their sides; the margin has white and brown spots alternating. there is a heavy dark brown mark on the veinlet connecting median and cubitus, the pterostigma is not distinct, and scarcely more so in the hindwings; the apical venation, especially the cross-veins in hindwings, is brown. Three radial sectors, the third forked twice or three times before outer gradate series; costal space quite broad at base. The median is bent toward the cubitus at connecting veinlet; in hindwings the first fork of radial sector is plainly before the fork of median. Expanse 15-17 mm.

Specimens from Ithaca and Sea Cliff, New York; Washington, D. C., and vicinity; Sulphur Springs, Pennsylvania; Onaga, Kansas, and Detroit, Michigan. From May on during the summer. There is, apparently, no doubt that *H. castanæ* Fitch is the European *H. humuli*; and McLachlan has recorded *H. humuli* from New York.

Hemerobius marginatus Steph.—Head pale yellowish, a reddish brown mark on each cheek; antennæ pale yellow; pronotum with a brown stripe each side, rest of thorax pale yellowish; abdomen pale brown; legs pale yellowish. Wings hyaline, venation pale, longitudinal veins barely, if at all, marked with brown, gradate veinlets mostly brown, but not margined, basal veinlets also brown, and those near posterior margin at base also brown and faintly clouded; some brown patches along apical margin, not very distinct. Hindwings with pale venation, pterostigma scarcely distinct. Forewings rather broad, the costal area at base broad, fully four times as broad as length of cross-veinlet connecting subcosta and radius; otherwise similar to *H. humuli*. Expanse 15 mm.

Females from Mt. Washington, New Hampshire (Mrs. Slosson). McLachlan has recorded a female from the same locality; I have not seen a European specimen, but since it is closely allied to *H. humuli*, and said to differ in broader costal area, I think the identification is correct.

Hemerobius pacificus Banks.—Head pale, a brown stripe below each eye, and a line at base of antennæ, the latter pale, thorax pale, hardly brown each side; legs and abdomen pale; wings hyaline, venation pale with scattered brown dots, some of those near the base darker brown; these dots give off indistinct oblique clouds, gradate veinlets mostly brown, clouded to form an indistinct band, border with groups of brown dots, pterostigma indistinct. Wings rather broad, pointed at tip, costal space narrow toward base, median much bent toward cubitus at connecting veinlets; three sectors, upper branch of the third forked before the inner gradate series, lower simple. Last gradate veinlet of inner series is distinctly beyond the previous one. Hindwings not marked, veins pale, except a few of the outer gradate ones. Expanse 18-21 mm.

Many specimens from various places in the west as follows: Olympia, Pullman, Seattle and Mt. Ranier, Washington; Santa Fé, New Mexico (Cockerell); Kaslo, British Columbia (Currie); Fieldbrook and Placer County, Los Angeles County and San Diego County, California; Williams and Bright Angel, Arizona.

Hemerobius simulans Walk.—Face yellowish, cheeks with brown stripe, a brown spot above each eye; pronotum and rest of thorax pale in middle, brown on sides; abdomen brown; legs pale yellowish; wings dusky hyaline, venation pale, rather heavily marked with brown, a larger spot on basal cross-veins, a band on inner gradate series, and apical margin with alternate brown and white patches, outer gradate series less heavily marked, spots at forkings of veins; hindwings with mostly brown venation, pterostigma rather distinct. Forewings rather long and narrow, costal area at base rather narrow, not much over twice the length of veinlet connecting subcosta and radius; a cross-vein near base of first radial sector back to median; last gradate of inner series just beyond previous one. Expanse 17 mm.

One specimen from Ithaca, New York, which I think is this species recorded from Nova Scotia and Canada. I have not seen a male. It has rather more slender wings than the allied species, and is more heavily marked. McLachlan, who has seen the type in the British Museum, says it is the same as *H. orotypus*, a rather uncommon species in mountainous and northern Europe.

Hemerobius hyalinatus Fitch.—Head pale yellowish, black under the eyes, brown above each side, continued back upon the thorax; legs and abdomen pale yellowish. Wings hyaline, veins hyaline, evenly dotted with light brown; cross-veinlets not darker, margin with similar brown points; hindwings hyaline, with hyaline venation; pterostigma rather reddish in both pairs. Wings short, a little more than twice as long as broad, rounded at tip; median but little bent toward cubitus at connecting veinlet; a veinlet from median to radius near origin of first sector; three sectors, upper branch of third forked, lower simple; last veinlet of inner gradate series basad of next to last; in hindwings the radial sector is forked before forking of median. Expanse 12-14 mm.

Specimens from Sherbrooke, Canada (Bégin); Franconia, New Hampshire; Ithaca, New York. Fitch's specimens were from central New York; and Currie's specimen is from Kaslo, British Columbia, June 17th. It prefers pine trees. All taken in May and June. Since seeing a specimen in the Fitch collection in the National Museum labelled "*H. hyalinatus* var. *a*," there is no doubt that my. *H. canadensis* is the same. I have seen the type in the Hagen collection at Cambridge. It is readily known by its small size and pale color.

Hemerobius dorsatus Banks.—Head pale yellow, cheeks brownish, and a short brown line from middle of face down on the clypeus; antennal sockets marked with brown, antennæ pale, but darker at tips, thorax dark brown on sides, with a broad median stripe of yellow; abdomen brown; legs pale yellow. Wings hyaline, very evenly marked with brown fimbriæ, veins dotted with brown, the gradate series more heavily brown, outer and posterior margin alternately brown and white. In the hindwings the venation is brownish, and the pterostigma rather reddish. Forewings moderately long and narrow, costal area quite broad at base, the lower branch of median vein is slightly bent toward the cubitus, there are four radial sectors, the first three not forked till near tip, the fourth twice forked before gradate series, the basal cross-vein connecting median to radius ends near base of first radial sector. In the hindwings the first fork of radial sector is much before forking of median vein. Expanse 17 mm.

Specimens from Fort Collins, Colorado, August, and Veta Pass, Colorado, July.

Hemerobius cockerelli Banks.—Head pale yellowish, darker across base of clypeus; antennæ pale yellowish; thorax pale yellowish, with a broad brown stripe each side, not as plain behind as on prothorax; abdomen pale at base, dark beyond; legs pale. Wings pale brown, with many white spots throughout the middle region, on the margin similar spots on the veins, a darker brown band across both series of gradate veins, and a large spot at the connection between cubitus and median; margin of wing with a brown dot at end of each vein, and one between the ends, no white spots on margin; hindwings nearly hyaline, veins brownish, margin dotted as in forewings. Wings rather narrow; costal area moderately broad at base; median bent toward cubitus at connecting veinlet; a veinlet connecting median to radius near base of first radial sector; last veinlet of inner gradate series is beyond preceding one; in hindwings the radial sector forks before forking of median. Expanse 18 mm.

Type from top of Las Vegas Range, 11,000 feet, New Mexico (Cockerell), and the type of *H. caudelli*, which I consider identical, is from London Hill Mine, Bear Lake, British Columbia, 7,000 feet, July 29th.

Hemerobius conjunctus Fitch.—Head blackish, a pale spot on the labrum and one above antennæ; latter pale; thorax pale, a brown stripe each side; legs pale; the abdomen fuscous. Wings with pale venation, dotted with brown, these dots often surrounded by small clouds, those on the veinlets connecting median to anal form a large and prominent spot, and on the gradate veinlets, which are brown, they form a continuous band, border of wings rather obscure, and with alternating dark and pale dots, pterostigma hardly distinct; hindwings not marked, the costal and some of the gradate veinlets brown Wings not very broad, tip almost pointed, costal area narrow toward base; median distinctly bent at connecting veinlet toward cubitus, a veinlet connecting median to radius close to base of the first sector; three sectors, upper branch of the third forked twice before outer series of gradate veinlets, lower branch simple, last gradate veinlet of inner series is below or basad of previous one. Expanse 16-18 mm.

Specimens from Mt. Washington and Franconia, New Hampshire (Slosson); Fitch's specimens from central New York, May; and Currie's *glacialis*, which is apparently the same (the specimen being very poor), is from Kokanee Mountain, British Columbia, 9,000 feet, August 10th. It is taken on or near pine trees. The type is in the Hagen collection.

Hemerobius nevadensis Banks.—Head pale yellowish, a brown dot between antennæ, the latter pale yellow, darker at tips. Thorax dark brown, with a broad median yellow stripe; abdomen dark brown, nearly black; legs pale yellow. Wings hyaline, the veins mostly pale, the radial sectors and some others dotted with brown. Around the margin are brown spots alternating with whitish ones; the gradate series are rather heavily marked with brown, and the veinlets connecting median, cubitus and anal near base are also brown. In the hindwings the venation is pale, except around the margin, where it is brown. The forewings are moderately long, the costal area rather narrow at base, the lower branch of the median is not bent toward the cubitus, so that the connecting veinlet is as long as that connecting cubitus to anal. Basal cross-vein connecting median to radius ends near origin of first radial sector. In the hindwings the first fork of radial sector is plainly before the forking of median vein. Expanse 15 mm.

One specimen, Ormsby County, Nevada, July (Baker).

BORIOMYIA n. gen.

Antennæ moniliform; wings entire; subcosta ending in margin; costal area broad at base; with a recurrent vein; costal cross-veins branched; two series of gradate veinlets in both pairs, the outer in forewings of more than four veinlets; a cross-vein connecting first radial sector to median vein; usually four radial sectors; the median is scarcely bent toward the cubitus at connecting veinlet; in hindwings the first radial sector forks as far out as forking of the median vein.

Type —*B. disjunctus* Banks.

This genus includes several European species, notably *Hem. pellucidus.* The species are mostly found in the north or in mountainous localities.

SYNOPSIS OF SPECIES.

1. From cubitus between basal cross-vein and the last veinlet of inner gradate series there is but one fork; inner gradate series running into cubital cell .... 2.
From cubitus between basal cross-vein and the last veinlet of inner gradate series there are several forks; inner gradate series not running into cubital cell .... 3.
2. Forewings banded at middle and tip, and hindwings at tip with brown. **fidelis.**
Forewings not plainly banded; hindwings with dark spot at tip. **speciosus.**
3. First radial sector connected to second near base by a cross-veinlet.. ......4.
First radial sector not connected to second .... 5.
4. Apical margin of forewing alternately white and dark brown. **longifrons.**
Apical margin of forewing evenly pale brown... ... .**transversus.**
5. Face pale yellow, with a median dark stripe below; wings rather evenly marked.......................... ....**coloradensis.**
Face mostly brown or black, without dark median stripe below... ....6.
6. Forewings pale, with but few marks except two dark spots on inner gradate series; venation of hindwings almost entirely pale; face shining black..**schwarzi.**
Wings more heavily marked; apical of hindwings more or less brown......7.
7. Venation of hindwings almost wholly brown....... ... .**disjunctus.**
Venation of hindwings pale, except at tip ... .**posticatus.**

Boriomyia fidelis Banks.—Head and thorax fuscous; antennæ and legs pale; abdomen blackish. Wings hyaline, venation pale, scarcely dotted with brown, gradate veinlets mostly fuscous; a dark band across wing from within pterostigma through gradate veinlets, and mostly fuscous beyond the second gradate series: hindwings with an indistinct dark band across the middle, and another just beyond outer gradate series, leaving a narrow pale, apical margin.

Wings broad, broadly rounded at tip; costal area very broad; radius and subcosta farther apart than usual and connected toward base by two veinlets; median not bent toward cubitus at connecting veinlet; a veinlet connecting median and first radial sector; four sectors, the fourth arising beyond the middle of the wing, forked once before outer gradate series, other sectors simple; last veinlet of inner gradate series basad of next to last; in hindwings the radial sector forks before the forking of median. Expanse 12-16 mm.

Specimens from Gowanda, New York (Van Duzee); Franconia, New Hampshire (Slosson); Lakehurst, New Jersey (Torre Bueno): Natrona, Pennsylvania; Falls Church, Virginia, and North Carolina. All taken during June or the last week of May.

Boriomyia speciosa Banks.—Head yellowish brown, darker above: antennæ pale yellowish; thorax almost black; abdomen dark brown: legs pale yellowish. Wings hyaline, marked with dark brown, venation mostly pale, with a few scattered brown dots, more brown toward margin of wing, apical half of both anterior and posterior margins interruptedly brown and yellowish, an indistinct brown patch in costal area before the pterostigma, five or six almost black dots along the radius, one at base of sectors, but first one beyond base of first sector, and one under the pterostigma; another similar spot on cubitus where it is connected to anal, a series of four or five obliquely across wing following the first gradate series, the anterior one being on the first fork of the fourth radial sector, and beyond is a crescent of five spots, most of them contiguous, on the upper part of the second gradate series the posterior four of these are geminate, with a minute white point, a larger triangular dark spot near end of cubitus and anal veins. Hindwings with the costal neuration near middle and toward apex distinctly brown, between it is very pale. The forewings are very broad, but acute at tips; the costal area is very broad at base. There are four radial sectors, but the first is rather peculiar, it arises nearer base than usual, at first diverges but little, but curves before origin of second sector; none of the sectors are connected back to radius; the median is not bent toward the cubitus at connecting veinlet. Expanse 15 mm.

One specimen from Plummer's Island, Maryland, September 9, 1903. A very distinct species on account of markings, and peculiar first radial sector.

Boriomyia longifrons Walk.—Face shining brown, vertex pale; antennæ pale yellowish, darker at tips; pronotum pale, with brown stripes each side, rest of thorax similar; abdomen pale brownish; legs pale yellowish, sometimes a darker band on anterior tibiæ. Wings hyaline, forewing with mostly brown venation, alternate white and brown spots around margin, an indistinct band at gradate series and another toward base, a dark mark on posterior margin near middle, and a great many small brown marks from the veins. Hindwings with mostly pale venation, sometimes darker near tip. Antennæ quite long. Wings broad, especially the costal area near base; four radial sectors, or if three, then the last is forked three times before outer gradate series, the first sector connected back to base of second sector, the cubitus is forked several times between basal cross-veins and inner gradate series. In hindwings the first fork of radial sector is as far out as fork of median vein. Expanse 22 mm.

There are three specimens in the Fitch collection in the National Museum. Have also seen it from Quebec, Canada (Fyles); Franconia, New Hampshire (Slosson); Ithaca, New York, June 23rd, and Isle Royale, Lake Superior (Hubbard)—the type is from Canada. It is our largest species of the genus.

Boriomyia transversa Banks.—Face shining black, vertex and antennæ pale yellowish; thorax pale, a black stripe across front of mesothorax; abdomen brownish; legs pale yellowish. Wings with margins faintly but broadly clouded. Three gradate series clouded with brown, and a brown band between the first and second; first gradate series from base of second radial sector obliquely backward, second and third in usual positions, all nearly complete. There are four sectors in one specimen, but three in the other, but the last one is forked twice before the gradate series. The median vein is not bent toward the cubitus, so that the connecting veinlets are subequal in length; the costal area is very broad at base. In the hindwings the veins are all pale, except a cross-vein closing the post-costal cell, which is prominently brown; the first fork of radial sector is as far out as the fork of median vein. Expanse 20 mm.

One from Colorado (probably Denver), and one from Williams, Arizona, July 24th (Barber).

Boriomyia coloradensis Banks.—Head pale yellowish, a brown spot under each eye, and a larger one below the antennæ, with branches upward around the sockets; antennæ pale yellowish, a brown stripe on outer side of basal joint; thorax pale, brown on sides; legs pale yellowish; abdomen rather dark. Wings hyaline, veins whitish, with brown dots; gradate veinlets brown, slightly clouded, more distinctly on the last two of inner series; each brown dot giving off an oblique mark each side; brown dots around margin of wing; pterostigma indistinct; hindwings not marked, venation pale. Wings rather broad, tip rounded; costal area broad at base; median not bent toward cubitus at connecting veinlet; a veinlet connecting median and first radial sector; three sectors, upper branch of third forked again before the outer gradate series, lower simple; last veinlet of inner gradate series basad of next to last; first radial sector not connected to second; in hindwings the forks of radial sector and median are opposite. Expanse 16–17 mm.

Specimens from Ft. Collins, Colorado (Baker); Ormsby County, Nevada; San Mateo County, California (Baker); and Laggan, Alberta (Wickham).

Boriomyia schwarzi Banks.—Face shining black, vertex pale yellowish, pronotum and rest of thorax pale, a black stripe across the front of mesothorax, indistinct dark spots on mesothorax and metathorax above. Abdomen brownish; legs pale yellow; wings very pale yellowish, the main veins lightly spotted with black, but the margin of wing unmarked. The first gradate series broken, the posterior part and the median part clouded with brown, so that each wing appears to have two brown spots near middle. In hindwings the veins are all pale, unmarked. In forewings the median is not bent toward the cubitus, so that the basal cross-veins there are of subequal length. In hindwings the first fork of the radial sector is as far out as the fork of median vein. In the forewing the first radial sector is not connected to second near base, and there are three or four branches from the cubital cell. Expanse 16–18 mm.

Specimens from Williams, Arizona (Barber), July 23rd, and Mesilla, New Mexico (Morse).

Boriomyia disjuncta Banks.—Head black, with two pale spots above, antennæ pale; thorax pale, blackish on the sides, and some dark, almost connected, spots along the middle; abdomen blackish; legs pale, darker toward the tips of the femora, and the bases and tips of anterior tibiæ. Wings with blackish veins, dotted and spotted with white; three dark spots on the posterior margin, all tending to form bands, the last one about middle of wing and more prominent than others; some clouds near the pterostigma and on the outer gradate series: the margin with alternating dark and white patches; pterostigma obscure; cross-veins all dark; hindwings not marked, venation blackish. Wings rather slender, almost pointed at tip; median not bent toward cubitus at connecting vienlet; a veinlet connecting median and first radial sector some distance out on latter; first radial sector not connected to second; three radial sectors, the third forked twice before outer series of gradate veinlets; last gradate veinlet of inner series coinciding with next to last. Expanse 20 mm.

Specimens from Mt. Washington, New Hampshire (Slosson); Sherbrooke, Canada (Bégin); Ithaca, Axton (MacGillivray), and Keene Valley, New York; Kaslo and vicinity, British Columbia (Currie). June to August.

Boriomyia posticata n. sp.—Face brownish. vertex yellowish; antennæ yellowish; thorax with a broad median yellow stripe, and a broad red-brown one each side; abdomen dark brown; legs pale yellowish. Wings hyaline; venation pale, marked with brown; middle area of wing barely marked at all; the costal area somewhat marked, and the cross-veins bordered with brown; the wing beyond the outer gradate series is more distinctly marked with small patches of brown. Where the inner gradate series meets the lower branch of median there is a large triangular brown spot, its tip extending out on the median vein; behind the cubitus the wing is very distinctly and obliquely barred with brown, two of the bands being quite broad; pterostigma not distinct. Hindwings hyaline, with apical venation brown. Three radial sectors, third forked but once before outer gradate series; costal area moderately broad at base; the median is not bent toward the cubitus at connecting veinlet. The wing is longer than usual. In hindwings the first fork of radial sector is out as far as fork of median. Expanse 21 mm.

One female from southern Utah.

SYMPHEROBIUS n. gen.

Antennæ moniliform; wings entire; subcosta ending in margin; costal area rather broad at base, a recurrent vein; costal cross-veins often branched; two series of gradate veinlets in forewings, the outer of only four veinlets; only one series (the inner) in hindwings; a cross-vein connecting first radial sector to median vein; the median is usually a little bent toward the cubitus at connecting veinlet; in hindwings the median usually forks plainly beyond forking of radial sector; usually but two radial sectors.

Type.—*S. amiculus* Fitch.

This genus includes a few European species, among them *Hem. elegans* Steph.

SYNOPSIS OF SPECIES.

1. Venation of forewings entirely dark .... 2.
   Venation of forewings interrupted with pale .... 3.
2. One or two dark lines between veins .... **occidentalis.**
   Membrane of wing entirely dark .... **umbratus.**
3. Longitudinal veins of forewings minutely dotted with brown .... 4.
   Longitudinal veins of forewings mostly dark, but interrupted by whitish spaces .... **angustus.**
4. Forewings with broad bands on gradate series, and a band nearer base. **pictus.**
   Forewings do not have both gradate series broadly marked .... 5.
5. Costal area narrow at base; no large dark spot on posterior part of inner gradate series reaching to margin of wing: black basal part of antennæ not sharply terminating .... **perparvus.**
   Costal area broader at base; a large dark spot on posterior part of inner gradate series reaching nearly to margin of wing; black basal part of antennæ usually sharply defined .... 6.
6. Eastern specimens .... **amiculus.**
   Western specimens .... **barberi.**

Sympherobius occidentalis Fitch.—Face shining brown, vertex pale, basal joints of antennæ yellow, beyond for one-third black, rest pale yellow; thorax brown, with indication of pale median stripe; abdomen brown; legs pale yellow, femora sometimes infuscated; wings with one or two brown lines in each cell, except the costal area, venation brown, the cubitus and basal cross-veins more heavily marked; apical margin with dark dots. Hindwings rather dusky, venation brown, costal area rather darker than elsewhere. Forewings with the costal area rather broad, two radial sectors, first usually connected back to radius, but not to second, the median is but little bent toward cubitus at connecting veinlet, which is at about same point as veinlet connecting cubitus to anal; cubital cell long, with two branches below, four outer gradate veinlets, often disjoined. Expanse 10 mm.

Described by Fitch from northern Illinois. I have seen it only from Onaga, Kansas (Crevecoeur). A very distinct species by the dark lines in membrane between veins.

Sympherobius umbratus Banks.—Dark shining brown; abdomen rather paler brown antennæ and legs pale yellow; forewings uniformly dark brown; hind wings nearly hyaline, except the brown costal streak, all venation brown, unmarked. In structure similar to *S. occidentalis;* the first radial sector connected to lower fork of the second sector, the first sector not forked till near margin of wing; the costal area is quite broad. Expanse 10 mm.

From Williams, Arizona, June 10th (Barber), and Albuquerque, New Mexico (Oslar).

Sympherobius angustus Banks.—Head pale yellowish, a dark line on cheeks and one near eye in front, a black spot between bases of antennæ, an oblique black line on each side of vertex; antennæ scarcely blackish on basal third; pronotum pale, brownish each side, meso—and metathorax brown, with median pale stripe; abdomen pale brown; legs pale yellowish. Fore wings pale, densely marked with brown, especially behind, apical margin with large dark spots alternating with white ones; gradate veinlets heavily brown, longitudinal veins pale, with long stretches of brown, sometimes clouding the wing, basal cross-veins broadly brown, no large posterior mark. In hind wings the marginal venation is brown, and the membrane faintly clouded along posterior margin Fore wings long and narrow, costal area narrow at base, two radial sectors, the first connected back to radius before origin of the second. In the hind wings the radial sector at base is connected back to radius to form a small closed cell near base of wing. Expanse 12 mm.

One specimen from Mesilla, New Mexico (Morse), two from Los Angeles, California, and others from Las Vegas Hot Springs New Mexico, August (Barber); also from San Luis, Mexico, preying on *Ceroplastes.*

Sympherobius pictus Banks.—Pale brown; prothorax rather darker; antennæ pale, black-ringed at base and blackish at tip; legs pale yellow. Fore wings hyaline. with four broad brown bands in middle area of wing, the two intermediate rather close together. Around the outer and posterior margin are pale brown spots alternating with smaller whitish spots; costal area pale brown, veins pale, dotted with brown; hind wings hyaline, costal area and venation pale brown. The wings are rather short, the costal area moderately broad at base; the first radial sector forks before origin of second sector, but does not appear to be connected to it or to radius. Expanse 9 mm.

From southwestern Colorado (Oslar).

Sympherobius perparvus McLachlan.—Face pale yellow, vertex pale, pronotum brown, meso-and metathorax paler brown; abdomen brown; legs pale yellowish, hind femora brownish; antennæ brownish, barely paler beyond. Wings hyaline, marked with brown, sometimes very heavily and indicating three irregular bands, two on gradate series and one nearer to base; apical and posterior margins white and brown alternating, longitudinal veins pale, evenly marked with minute brown dots; hind wings with mostly pale venation, costal area brownish, especially at pterostigma, and often indications of brown patches along apical margin. Fore wings long and narrow, costal area narrow at base, about three times as wide as length of veinlet connecting sub-costa to radius; two radial sectors, not commonly connected, the median is not bent toward cubitus at connecting veinlet, two branches from lower border of cubital cell, four veinlets in outer gradate series, usually disjoined. Expanse 9 to 11 mm.

Various specimens from Texas, New Mexico and Arizona in May and July. Sometimes very pale; one specimen from Arizona is extremely dark, the membrane being almost entirely brown.

Sympherobius amiculus Fitch.—Face shining brown, vertex brown. Thorax and abdomen brown, legs pale yellowish; antennæ black on basal two-fifths, very pale beyond, the limit of dark usually very distinct. Wings hyaline, mottled with small brown patches, rather evenly distributed. Along the inner gradate series are dark brown marks which culminate in a subtriangular mark, reaching to the posterior margin; longitudinal veins pale, evenly marked with minute brown dots, apical and posterior margin alternately white and brown; hind wings with pale venation. Fore wings rather broad, costal area at base broad, about five times the length of veinlet connecting subcosta and radius; four outer gradate veinlets, usually in twos; two radial sectors, the first usually connected to second near base of latter; the median vein is but little bent toward cubitus at connecting veinlet, and this veinlet is much farther out than that connecting cubitus and anal; the lower border of cubital cell emits two branches. Expanse 9 to 12 mm.

Described from central New York and Illinois. I have specimens from Sea Cliff, New York; Washington, D. C., and Falls Church, Virginia, in July. I have seen the type in the Museum of Comparative Zoology at Cambridge, Massachusetts.

Sympherobius barberi Banks.—Head pale yellowish, antennæ pale marked with black near base and tip as in allied species. Thorax pale, darker on sides; abdomen brownish; legs pale yellow. Wings pale, the fore wings finely and evenly irrorate with light brown, except the base is paler, and there is a larger patch near middle of hind margin, and one in anal area. The venation is pale, with brown dots, and there are scattered white spots along the outer margin. The hind wings are hyaline, with pale venation, except that around the margins is more brownish. The fore wings are rather long and narrow, and the costal area is broad at base, but four outer gradate veinlets, two radial sectors, the first connected to median near base. No outer cross-veinlets in hind wings. Expanse 9 mm.

Two specimens from Williams, Arizona, July 20th (Barber); also East Las Vegas, New Mexico (Cockerell).

MEGALOMUS Rambr.

Wings entire; broad; the subcosta ends in margin; the costal area very broad at base, with a recurrent vein; costal veinlets branched; two series of gradate veinlets; at least five radial sec tors; all the veins very close together.

Type.—*M. tortricoides* = *hirtus* Fabr.

This genus is very closely allied to *Hemerobius;* no species occur in the Eastern States.

SYNOPSIS OF SPECIES.

1. Upper half, at least, of outer gradate series brown; inner gradate series brown nearly to radius..2
   Outer gradate series almost wholly pale; inner gradate series with several pale veinlets on upper part, large species.................. **latus.**
2. Venation denser; median forked between gradate series......... **mœstus.**
   Venation more open; median not forked between gradate series....**minor.**

Megalomus latus Banks.—Head pale brown; antennæ rather paler; thorax darker brown; abdomen brown; legs yellowish. Wings hyaline, veins densely dotted with brown; dark spots alternate with pale around the margin, first gradate series marked with black except near base, second series mostly pale, a rather large blackish spot on middle of hind margin; hind wings hyaline, costal area and apical venation brown, also two brown spots on the hind margin. Fore wings very broad, especially the costal area at base, five or six radial sectors, the first soon forked, veins very close together; first gradate series straight, oblique; second curved, following the outline of wing. In hind wings four branches to radial sector, the costal cross-veins very numerous. Expanse 20 mm.

Specimens from Las Vegas Hot Springs, New Mexico; Williams, Arizona, July; and Huachuca Mountains, Arizona.

Megalomus mœstus Banks.—Head pale shining brown, mouthparts yellowish; antennæ pale; thorax brown; legs pale yellowish. Wings hyaline, venation pale yellowish, dotted and spotted with brown, gradate veinlets entirely brown, except some in lower half of outer series, costal and apical margin of wings alternately brown and pale; a large dark spot on hind margin near end of anal vein. Fore wings very broad, costal area very broad at base; five or six radial sectors; the first soon forked; all veins very close together; first gradate series bent basad at middle, second curved, following outline of wing. Expanse 15 mm.

Specimens from Santa Fé, New Mexico, July and August (Cockerell).

Megalomus minor n sp.—Head pale yellowish, vertex with a dark median stripe; antennæ pale, rather darker beyond; palpi, pale yellowish; thorax and abdomen dark brown; legs pale yellowish. Wings hyaline; venation pale, marked with brown, the longitudinal veins and costal veinlets interruptedly brown and yellowish, the gradate series nearly black, and a black spot at the anal angle, and a smaller one on cubitus toward base; margin with alternate brown and white patches. Wings of usual shape; venation not as dense as in allied species, five or six sectors, the first gradate series but little curved. Length 6 mm.

Two specimens from San Marcos, Nicaragua, and one from Ormsby County, Nevada (Baker). Differs from *M. mœstus* and *M. latus* in smaller size, dark stripe on vertex and less dense venation.

PSECTRA Hagen.

Antennæ moniliform; wings with costal area narrow at base; no true recurrent nervure; two radial sectors; and only one series of gradate veins; margin entire; in the only known species the female lacks the hindwings.

Type.—*P. diptera* Burm., the only species.

Psectra diptera Burm.—Face shining black, vertex brown, antennæ brownish, thorax paler brown; abdomen dark brown; legs yellowish, brownish on knees. Wings nearly hyaline; slightly marked with brown between the veins; venation mostly brown; some of the longitudinal veins marked with pale, a more or less distinct brown band on gradate series; pterostigma not distinct; hind wings nearly hyaline, costal margin darker on basal half; venation pale, brown near tip. Basal joint of antennæ rather large, vertex hairy, tibiæ of legs swollen in middle; forewings rather slender, rounded at tip, subequal in width throughout; costal area narrow at base; two radial sectors, the first soon forked; one gradate series, interrupted in the middle; hind-wings slender, three radial sectors; no gradate series; female without hind wings. Expanse 5 to 6 mm.

Specimens from Ithaca, New York; Agricultural College Michigan (Pettit); and Franconia, New Hampshire (Slosson). Fitch's specimens were from northern Illinois, in October. It appears to be more common in this country than in Europe.

MICROMUS Rambr.

Antennæ moniliform; wings entire; subcosta ends in the margin; costal area narrow at base, no recurrent vein; three to five radial sectors; two series of gradate veinlets.

Type.—*M. variegatus* Fabr.

A very easily recognized genus; there are two groups of our forms, those with broad wings and those with slender wings.

SYNOPSIS OF SPECIES.

1. The gradate veinlet of inner series that connects first radial sector to the median is basad of the one above it, this series making an even gradate row; wings rather short; five radial sectors.......... **angulatus.**
   This gradate veinlet is beyond the one above it, so that this series is broken and not even.. ....2.
2. Five radial sectors, the outer gradate series forming an even row **montanus.**
   Four radial sectors or less.............. ....3.

3. Gradate veinlets of inner series usually less, never much more, than length apart..**posticus.**
Gradate veinlets of inner series much more than length apart..............4.
4. Membrane of wing considerably infuscated in spots, veins mostly brown **variolosus.**
Membrane without dark spots, veins mostly pale...........**subanticus.**

Micromus angulatus Steph.—Head pale brown; thorax similar, with darker patches on the lateral lobes; abdomen brown; legs pale yellow, anterior tibiæ with brown marks on outer side. Wings hyaline; indistinctly marked with wavy brown bands; venation pale, dotted and spotted with brown; cross-veins wholly brown, margin with alternate stretches of pale and brown; hind wings hyaline, venation pale, except brown at apex. Wings rather broad; short for length of abdomen; four radial sectors; the two gradate series even and parallel, the next to last of inner series before previous one. Expanse 15 to 16 mm.

Specimens from Fort Collins, Colorado; Franconia and Mt. Washington, New Hampshire (Slosson). Hagen recorded it from the White Mountains and Canada. It is a mountain loving species in Europe.

Micromus montanus Hagen.—Head dull yellowish; antennæ pale yellow; thorax yellowish, brown on sides; abdomen brown; legs pale yellow. Wings hyaline; venation yellowish, marked with pale brown; cross-veins pale brown; costal venation almost wholly pale; membrane with transverse brown bands, those on gradate series most distinct; hind wings hyaline, venation wholly pale yellow. Wings moderately broad; five radial sectors; next to last veinlet of inner gradate series beyond the previous, rest of series even. Expanse 20 to 22 mm.

Specimens from Mt. Washington, New Hampshire (Slosson); Beulah, New Mexico (Cockerell); Ormsby Co., Nevada (Baker); and Kaslo, British Columbia (Currie). Hagen had it from Natick, Massachusetts, and the White Mountains, July. It is extremely close to the European *M. paganus* Linn.

Micromus posticus Walk.—Head pale, marked with reddish on face and vertex; antennæ pale, darker toward tip; thorax brown, with some indistinct pale spots; abdomen brown; legs pale yellowish, tibiæ with dark mark on outer side near tip. Wings hyaline; alternate brown and white patches around margin; venation pale, marked with brown in dots and spaces; cross-veins wholly brown; membrane of wing crossed by many wavy brown bands, most distinct in outer posterior part; hind wings unmarked, venation reddish, except pale on base, and cross-veins dark brown. Wings rather slender; four radial sectors; next to last veinlet of inner gradate series is beyond the previous one, otherwise the series is regular. Expanse 15 to 18 mm.

Many specimens from various localities in the Eastern and Southern States throughout the summer; one of our most abundant Hemerobiids. I have bred the larvæ several times; they occur on various deciduous trees, feeding on plant-lice.

Micromus variolosus Hagen.—Head pale yellow, a dark line on middle, connected to a line on base of clypeus, antennal sockets margined with dark, and vertex dark in middle; antennæ yellowish; thorax and abdomen brown; legs pale yellow; tibiæ marked with brown on outer sides. Wings hyaline, with brown clouds and streaks or bands, most prominent on outer half; venation brown, with pale spots; margin alternately brown and white; hind wings hyaline, with brown venation. Wings very slender; four radial sectors; the gradate series very irregular, and each veinlet more than its length from any other. Expanse 13 to 15 mm.

Specimens from Denver, Fort Collins and Salida, Colorado; Pullman, Washington; Pecos and Mesilla, New Mexico; and various places in Arizona. Hagen had one specimen from Denver, Colorado. They have mostly been taken in June and July.

Micromus subanticus Walker.—Head yellowish; thorax similar; antennæ pale; legs pale; abdomen brown. Wings hyaline, venation almost hyaline, with a few brown dots, cross-veins more brown, two of the outer gradate ones and the basal cross-vein more heavily brown, and margined with brown, a few brown spots along posterior margin; hind wings pale, venation pale in basal half, brown beyond. Wings slender; the gradate series very irregular, and each veinlet more than its length from any other; four radial sectors. Expanse 13 to 15 mm.

Specimens from Shreveport, Louisiana; Biscayne Bay, Florida; and Falls Church, Virginia, in June, on ground near base of grass tufts. Hagen had it from Haulover, Florida, March; Morgantown, North Carolina.

Since the above paper was written (November, 1904) there has just come to hand (July, 1905) Bull. No. 86 of the New York State Museum, with a table of genera of Hemerobiidæ, by J. G. Needham. He separates *Hemerobius amiculus* in a new genus—*Palmobius*, on the same venational point as myself. However, he has not noted the absence of apical cross-veins in hindwings, nor their number in forewings. He also separates from this a new genus, *Spadobius*, for what he calls the *H. occidentalis* Fitch. His figures of the wing, however, shows it is not that species at all, and in fact is closely allied to *S. amiculus*, and quite probably a specimen of that species. My series of this species shows still greater venational differences, which are evidently of no value. It is of course possible that there is in the east another species similar to *S. amiculus*, but it can only be proven by an examination of the male genitalia. The new genera used in this paper have been published in connection with a described species in my list of Neuropteroid insects from Washington, D. C., in November, 1904; so that Mr. Needham's two genera, *Spadobius* and *Palmobius*, are synonyms of my *Sympherobius*,

Mr. Needham in the same article describes a new *Micromus*, *M. jonas*, only known from the wings found in the stomach of a bullfrog. The venation is like that of *M. montanus*, except that there are but four sectors; this point, however, is not always constant in the genus, although usually so.

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Hemerobius citrinus Hag., Syn. Neur. N. Am., 204, 1861.

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Might be either *H. humuli* or *H. stigmaterus*.

EXPLANATION OF PLATES.

PLATE III.

Fig. 1. Portion of wing of *Boriomyia fidelis*, *c*, cubital cell.
" 2. Forewing of *Micromus.*
" 3. Forewing of *Sympherobius.*
" 4. Portion of wing of *Boriomyia disjunctus*, *c*, cubital cell.
" 5. Genitalia of *Hemerobius simplex.*
" 6 Forewing of *Megalomus.*
" 7. Forewing of *Climacia.*
" 8 Genitalia of *Boriomyia longifrons.*
" 9. Genitalia of *Boriomyia schwarzi.*
" 10 Forewing of *Psectra.*

PLATE IV.

" 11. Genitalia of *Lomamyia texana.*
" 12. Forewing of *Sisyra.*
" 13. Forewing of *Lomamyia.*
" 14 Genitalia of *Hemerobius conjunctus.*
" 15 Genitalia of *Sympherobius amiculus.*
" 16 Portion of wing of *Boriomyia transversa*, c—cubital cell; v—basal vein.
" 17. Genitalia of *Boriomyia coloradensis.*
" 18 Portion of wing of *Hemerobius conjunctus.*
" 19 Portion of wing of *Hemerobius humuli.*

PLATE V.

" 20 Genitalia of *Hemerobius conjunctus*, top view.
" 21. Genitalia of *Hemerobius dorsatus.*
" 22 Genitalia of *Hemerobius cockerelli.*
" 23. Genitalia of *Boriomyia coloradensis*, top view.
" 24. Genitalia of *Sympherobius perparvus.*
" 25. Genitalia of *Sympherobius angustus.*
" 26. Genitalia of *Hemerobius humuli.*
" 27. Genitalia of *Hemerobius mœstus.*
" 28. Genitalia of *Hemerobius stigmaterus.*
" 29 Genitalia of *Boriomyia transversa.*
" 30. Genitalia of *Hemerobius dorsatus*, top view.
" 31. Genitalia of *Boriomyia fidelis.*
" 32. Genitalia of *Sympherobius umbratus.*
" 33 Genitalia of *Boriomyia longifrons*, top view.
" 34. Genitalia of *Boriomyia disjuncta.*
" 35. Genitalia of *Hemerobius pacificus.*
" 36. Genitalia of *Boriomyia disjuncta*, end view.
" 37. Genitalia of *Hemerobius humuli*, top view.
" 38. Genitalia of *Hemerobius humuli*, top view.
" 39. Genitalia of *Hemerobius pacificus*, top view.

NEW SPECIES OF AMERICAN COLEOPTERA OF THE TRIBE ZYGOPINI.

BY H. C. FALL.

The North American species of *Copturus* (for which the names *Cylindrocopturus* and *Copturodes* have recently been proposed by Heller and Casey respectively) are for purposes of identification, conveniently separable into two groups, in the first of which the second ventral segment is tuberculate posteriorly, the remaining species showing no trace of these prominences.

The species of the first section, which we may call the *mammillatus* group, are considerably more numerous than has hitherto been supposed, and to *mammillatus* and *quadridens*, its only representatives on our present lists, may be added six more species, described in the following pages. Of these eight species, seven are members of the extreme southwestern fauna (Arizona, Southern California and Lower California), one extending its range as far east as Texas, while the eighth is known from Texas only. In 1897* Major Casey published a table of our species of this genus, twenty-one in number, of which thirteen are described therewith as new. *Minutus* Lec. is removed and made the type of a new genus—*Zygomicrus*, while *quadridens* and *sobrinus* described by Horn in 1894 and 1895 respectively, appear to have been overlooked.

Just how many of the forms described by Casey are valid species it is impossible to say; but judging from my own observations in those species where long series have been available, the minute differences in bodily form, markings, approximation of the eyes, etc., upon which most of these so-called species are founded, are quite insufficient for their establishment.

The following notes are suggested by a study of the material at hand.

C. adspersus Lec.—An abundant species from Kansas and Texas to Southern California, and within somewhat narrow limits exhibiting an endless amount of variation in just those details upon which Casey's *suturalis* and *cockerelli* are based. In the series of seventy examples before me there are typical representatives of both the above forms, which, in my opinion, represent only one extreme in tint and pattern of elytral vestiture.

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* Coleop Not. vii, Ann. N. Y. Acad. Sci., ix, July 1897, p. 669.

Of *koebelei* Csy. which was unwisely described from a very badly rubbed unique, I can only say that it is all but certain that it is only the prevailing California form of *adspersus*, which is always darker in color than specimens coming from the warmer parts of Arizona and New Mexico, though closely similar to those from Texas, Utah and the more elevated regions of Arizona.

C. missourianus Csy.—Of this I know nothing. According to Casey it "greatly resembles *operculatus*," and I find absolutely nothing in the description upon which to base a separation.

C. sparsus Csy.—Typical examples from the National Museum are before me. These are closely allied to *operculatus*, but the smaller size and somewhat conspicuously more approximate eyes are perhaps sufficient to distinguish it.

C. floridanus Csy.—Specimens from the type locality, Haw Creek, Florida—are at hand, agreeing in form and size with Casey's description, but not so pale in color. This is a common form of variation in *nanulus*, specimens of which from Texas are scarcely distinguishable from the Florida ones; I have no doubt of their identity.

C. frontalis Casey and *C. cavifrons* Casey.—These appear to be founded on trifling variations of *quercus*.

C. nubilatus Csy. and *C. mucidus* Csy.—These are identical and should be united under the former name. They are near relatives of *longulus*, barely distinguishable therefrom by the larger size and the somewhat less closely approximate eyes, which are nearest together at a point less inferior in position.

C. longulus Lec.—Casey is in error in assuming the eyes to be most closely approximate at the middle of the front in this species. They are precisely as described of *subcupreus*, *obscurellus* and *dispersus*, all of which I am confident will prove to be synonyms of *longulus*.

The characters upon which *Zygomicrus* is founded are of little moment, being so nearly paralleled or so gradually approached in other species of the genus that it can at best be regarded as no more than a subgenus, dependent more for its acceptance upon its general facies than upon any peculiarity of structure; it includes *minutus* Lec. and *sobrinus* Lec.

The species of the *mammillatus* group known to me may be tabulated as follows:

Vestiture of upper surface thickly set throughout with narrow erect scales; middle and hind femora carinate exteriorly: ventral tubercles feeble.
horridus.

Vestiture of upper surface without erect scales except in small isolated groups or tufts in certain species; femora not carinate; ventral tubercles strong ....2.

2. Prothorax and elytra with numerous conspicuous tuberculiform prominences, either of the derm or of the scaly vestiture; second ventral segment quadrituberculate............................... **quadridens.**

Prothorax never in the least tuberculate, elytra feebly so in certain species; second ventral segment bituberculate.......................3.

3. Beak more slender, nearly smooth beyond the antennal foveæ, the punctures very minute and remote throughout; antennal club very slender and gradually formed; interocular space narrower, ¼ to ⅙ the width of the eye; elytra with two more or less evident transverse rows of prominences, formed of groups of more erect scales.....................4.

Beak shorter and stouter, coarsely numerously punctate from base to apex, especially at sides, the median line smoother; antennal club wider and more abruptly formed; interocular space relatively wide, two-fifths to one-third the width of the eye; elytra devoid of elevated tufts or groups of scales, except feebly in *mammillatus*.............5.

4. Form more slender and parallel, size smaller (2 3—3mm), apical truncature of the elytra subequal to half the width of the thorax at base.
jatrophae.

Form stouter and more rhomboidal; size larger (4 mm), apical truncature of elytra distinctly narrower than half the basal width of the thorax.
filicornis.

5. Prothorax with a large and conspicuous subquadrate patch of whitish scales at the hind angles: elytral prominences always evident (at least the anterior series) though frequently ill-defined; form stout.
mammillatus.

Prothorax without conspicuous white patch at hind angles; elytral prominences feeble in *princeps*, otherwise completely wanting...........6.

6. Antennal funicle moderately, terminal joints of tarsi densely, albo-squamose.
princeps.

Antennal funicle and terminal joints of tarsi with fine sparse blackish pubescence...7.

7. First funicular joint subequal in length to the second; scales of upper surface in great part white, two basal thoracic spots and a small common sutural spot at the middle of the elytra, dark...........**littoralis.**

First funicular joint distinctly longer than the second; elytra each with a large median sublunate or parabolic spot not reaching the suture, dark brown, the scaly vestiture otherwise whitish and pale brown.
mediinotus.

Copturus horridus n. sp.—Stout, densely clothed with broad overlapping yellowish brown scales, thickly interspersed throughout the upper surface, except the sutural interval, with narrower erect scales of the same color; a small subsutural blackish brown spot at the middle of each elytron. Beak moderately stout, tapering to the insertion of the antennae, a little widened at tip, base squamose and punctate, tip glabrous and nearly smooth; antennae inserted at the middle of the beak, slender, rufotestaceous, club and tip of scape piceous, first joint equal to and scarcely stouter than the second which is a little shorter than the third and fourth together, club a little longer than the three preceding joints; eyes most closely approximate a little below the middle of the front where they are separated by rather more than half the distance between them at their superior limits. Prothorax a little wider than long, widest at base, sides nearly straight and convergent to the feeble apical constriction. Elytra a little more than twice as long as the prothorax and at the humeri one-fourth wider; sides very feebly arcuate, gradually converging to the apex, which is abruptly sinuate and then broadly rounded. Beneath densely clothed with paler closely appressed scales; legs, more especially the tibiæ, with the scales in part erect; first ventral segment broadly impressed throughout its middle second, with two feeble cusps at the middle of the posterior margin and separated from each other by a distance a little less than the length of the segment. Length 4.2 mm.

One example. San José del Cabo.

The outer or front face of the middle and hind femora bears a long, rather fine longitudinal glabrous carina, a character which is not present in any other species known to me; this and the erect scales of the upper surface will at once distinguish the species from any other in our fauna.

C. quadridens Horn.—Proc. Cal. Acad. Sci. 2d Ser. Vol. iv, 1894, p. 446. At once easily distinguishable from all our other species by the numerous and conspicuous tuberosities of the upper surface, and by there being four dentiform prominences along the posterior margin of the second ventral segment instead of the usual two. The size is large, the prevailing color of the upper surface pale brown with a common sutural subtriangular spot dark brown at the middle of the elytra. The prothoracic tubercles are arranged as follows as stated by Horn. An arcuate row of six tubercles limiting the apical constriction, a tubercle at the middle of the apical margin and two others on the disk behind the middle. The most prominent tubercles of the elytra are arranged in two transverse rows, one ante-median, the other post-median, with some smaller ones intermediate and along the basal and apical margins. The interocular space is narrowest near the middle, where it is from one-half to one-third the width of the eye. Length 3½ to 5½ mm, and about 2¼ times the width.

Lower California, El Taste (type), Santa Rosa (Beyer).

C. jatrophae n. sp.—Rather elongate, subparallel, prevailing color of the scales of the upper surface blue gray, obscurely varied with pale and dark brown; prothorax with a large subquadrate patch of white scales at the sides posteriorly; elytra with a white dot at the humeral angle, a short transverse subsutural white spot at the basal fourth, shading into pale brown exteriorly; contiguous to this pale spot, their anterior portions forming a part of it, their posterior portions blackish brown, is on each elytron a series of three short lines or tufts of erect or suberect scales occupying alternate intervals. Behind the middle is a similar transverse series of four prominences, two on each elytron, occupying the second and fifth interspaces in similar in coloration to those of the anterior series. There is a conspicuous white spot at the side margin opposite the first ventral segment, and the scales bordering the apical truncature are pale brown. Scales beneath in great part white, feebly intermixed with pale brown or lavender posteriorly. Eyes most closely approximate or at slightly above the middle, where they are separated by a distance varying from one-fourth to one-sixth of their own width. Prothorax parallel behind the rather strongly marked apical tubulation; apical truncature unusually wide. Length 2.3-3 mm., and from slightly less to slightly greater than 2½ times the width.

Arizona; Catalina Mountains (Schwarz).

I have used the MS. name given the species by its discoverer.

C. filicornis n. sp.—Form robust, suboval, prothorax rather strongly constricted apically, sides behind the constriction subparalled and broadly arcuate. Eyes separated at the middle by about one-sixth the ocular width. Antennæ slender, the club very narrow and extremely gradually formed; second joint of funicle a little longer than the first and equal to the third and fourth united. Beak slender, highly polished and subimpunctate beyond the insertion of the antennæ. Scales of the upper surface largely white and pale brown, confusedly intermingled. Prothorax with large white spot at sides posteriorly. Elytra each with a white spot at the humeral angle, a transverse spot at the basal third occupying interspaces 2-5, white internally, becoming pale brown externally; a shorter transverse spot near apical third, occupying the third and fourth interspaces, and a larger spot at the side margin opposite the second ventral segment extending inward to the seventh interspace. At the middle of the elytra there is a black spot on interspaces 2 and 3, and posterior to this a white stripe on the second interspaces. The transverse rows of prominences described in the preceding species are present though less marked, the posterior row being subobsolete. Scales beneath white almost throughout. Length 4 mm., width very nearly 2 mm.

Texas (San Diego). Collected by Mr. Schwarz.

Described from a single specimen in the National Museum collection. In this species the markings are of the same type as in *jatrophæ* and *mammillatus*. The eyes are more approximate than in any other species of the present group and the antennal club is narrower than in any other species of the genus represented in our fauna; in both respects, however, it is approached by *jatrophæ*.

C. mammillatus Lec. Proc. Am. Phil. Soc., vol. xv, 1876, p. 262.

Robust, suboval, form and markings nearly as in *filicornis*. The latter are described as follows by LeConte:

"Black, clothed with large oval scales of a light and dark brown color; prothorax with a large subquadrate spot of white scales at the hind angles, elytra with white spots as follows: a small dot at the base of the sixth interspace; a transverse spot on the second and third interspaces, one-fourth from the base; immediately behind this spot a large dark space; a smaller transverse spot behind the middle; a large lateral spot opposite the first ventral segment, and an adjoining small spot on the seventh interspace; the apical edge is also clothed with whitish scales." Interocular space narrowest at middle, where it is about two-fifths the width of the eyes. Second joint of funicle slightly longer than the first. Length 3-4 mm.; width slightly less than half the length.

"Southern California" (type); Ensenada and San Felipe, Lower California; Yuma, California; Tucson, Arizona (Schwarz); Nueces, Texas (Marlatt), San Antonio, Texas (Soltau). The Lower California specimens are nearly typical; those from Yuma, Tucson and Texas are more obscurely marked and perhaps represent a closely allied but distinct species.

The small pale spot described by LeConte as on the seventh interspace is really on the eighth, and it, as well as the posterior transverse spot on the second and third interspaces, is a little elevated.

C. princeps n. sp.—Robust, clothed with intermixed white and pale brown scales, the former predominating, giving the insect a cinereous aspect. The brown scales predominate on the posterior portion of the thoracic disk and in a transverse posteriorly arcuate spot at the middle of each elytron, attaining the sutural interspace and limited somewhat obscurely both before and behind by narrow pale bands. Anterior transverse row of prominences fairly distinct and coincident with the pale margin of the central spot; posterior series of prominences ill defined or obsolete. Beak coarsely punctured from base to apex, the punctures moderately dense at sides, sparser along the median line above; antennal funicle moderately, the fifth tarsal joint densely, albosquamose. Interocular space unusually wide, narrowest distinctly above the middle of the eye, where it varies from two-fifths to rather more than one-half the ocular width; inner margin of the eyes scarcely diverging superiorly. Length 5.5-6.1 mm.; width 2.7 3 mm.

Three examples of this fine species are before me; two taken by Mr. Coquillet in "Los Angeles Co., Cal." and now in the National Museum collection, and a third given me by Mr. Albright who collected it in Santa Monica Canon (also in Los Angeles County).

The largest of our species, and distinct from all others by the squamose antennal funicle and fifth tarsal joint.

C. littoralis n. sp.—Moderately elongate, suboval, white above and beneath, a dark spot each side of the middle at the base of the prothorax, a subtriangular sutural spot of brownish scales at the middle of the elytra. Beak stout and coarsely rather closely punctured, except along the median line; interocular space narrowest just above the middle of the eye, where it is nearly or quite equal to half the width of the latter. First and second funicular joints equal or nearly so. Prothorax as long as wide, not strongly constricted in front sides moderately arcuate. Elytra but slightly wider than the prothorax, humeri not prominent. Length 3.9-4.5 mm.; two and two-fifths times as long as wide.

California (Santa Monica and San Diego).

The Santa Monica specimens are to be regarded as typical. The two examples in my collection were taken by me in the sand dunes close to the beach beneath a low plant in the stems of which the insect probably breeds. The San Diego specimen is much more conspicuously marked, the dark brown scales which are few and found only in the basal thoracic and central elytral spot in the types, being scattered also throughout the surface, both above and beneath. The eyes are a little less widely separated, and their inner margins less evidently divergent superiorly. The form and style of maculation is, however, identical with the types and I doubt not it is merely a variation due perhaps to different habital surrounding.

C. mediinotus n. sp.—Rather elongate, subparallel, prothorax moderately strongly constricted at apex, the sides behind the constriction straight and slightly but distinctly sinuate at middle. Scales of upper surface white, pale brown and dark brown, the last named condensed in two basal thoracic spots which become confluent at the middle of the disk, and in a large parabolic spot outlined with white occupying approximately the middle third of the length of each elytron and in width interspaces 2-8. Second funicular joint distinctly shorter than the first; interocular space narrowest at or slightly above the middle, varying in width from approximately one-half to about one-fourth the width of the eye. Length 2¾-4 mm., and 2½ times the width.

Southern California (Pasadena and San Diego).

This, next to *adspersus*, is the most common species of the genus in Southern California. I have beaten it from sunflowers (*Helianthus*) in April at Pasadena, but if my memory serves me, examples collected by myself at San Diego in February—years ago—were found upon a different plant. The species goes as *lunatus* in some collections, but the latter, though superficially in some degree similar, belongs to the section of the genus with non-tuberculate second ventral segment. *Mediinotus* differs not only from *littoralis* as indicated in the table, but also from all the other species of this group in having the second funicular joint evidently shorter than the first.

The species with simple second ventral segment seem to be much better known than those of the preceding group, and I have only two to add to those previously described.

C. dehiscens n. sp.—Form rather strongly elongate, though less so than in *longulus*. Surface densely clothed with broadly overlapping scales, which are whitish and dark brown, and so confusedly intermingled that there is no distinct elytral pattern; alternate interspaces of elytra a little more prominent, the scales forming a distinct crest at the middle of the third and more posteriorly on the fifth. Antennæ blackish, the first and second funicular joints subequal, the second barely as long as the next two united. Beak highly polished and sparsely punctate beyond the antennal fovea, the punctures becoming gradually very fine and remote apically. Eyes narrowly separated, the interocular space narrowest at or below the middle, where it is about one-fifth or one-sixth the greatest width of the eye. Prothorax wider than long, widest before the base, sides broadly rounded posteriorly and broadly sinuate in front; the white scales condensed in two small lateral basal spots and in a large subrhomboidal discal spot which extends from the base to the apical constriction. Elytra twice as long as the prothorax, humeri oblique, not prominent, sides subparallel to the apical umbones, tips separately conically produced, leaving a well defined reentrant sutural angle; white scales vaguely condensed at the sides of the disk at anterior third, and in a posterior series of small spots on alternate interspaces. Beneath whitish and paler brown, the latter scales often with violaceous lustre. Length 2.5-2.7 mm.; width very nearly 1 mm.

California (Pacific Grove).

Described from a series of four specimens taken by Dr. Fenyes, to whom I am indebted for the type. The species is peculiar among those known to me in its dehiscent elytral apices, and is the only one thus far known in our fauna outside the *mammillatus* group, in which the elytral interspaces are cristate. The species might for this reason best immediately follow the *mammillatus* group. If we regard bodily form and contiguity of eyes as of more importance, it must be placed near *longulus* and allies, and in this case would best stand at the end of the series.

C. centropictus n. sp.—Elongate-oblong, densely clothed with broad overlapping scales of pale and dark brown and white. Antennæ brownish testaceous, scape, first joint of funicle, and club darker; joints proportioned as in *adspersus*. Beak rufopiceous, punctuation rather coarse and close, becoming finer and sparse at apex, interocular space equal to half the width of the eye, the point of closest approximation slightly above the middle. Prothorax scarcely visibly wider than long, sides parallel, distinctly sinuate at middle, rounding in a little at base, the apical constrictions rather strong; disk trivittate with white, the intervening areas marmorate with pale and dark brown, the former predominating. Elytra slightly wider than and very nearly twice as long as the prothorax. Scales in great part pale brown, the sutural interval in basal three-fourths, the second in its middle third and a small spot adjacent to these posteriorly on the third and fourth intervals white; white sutural area narrowly almost completely margined with blackish brown. There are two lateral white spots, one subhumeral, the other near the middle, and alternating with these two blackish spots. Scales beneath white and pale brown, confusedly intermingled. Length 3.9.; width 1.5 mm.

El Paso, Texas. A single specimen taken and kindly given me by Mr. Knaus.

This species is nearest *adspersus*, but seems quite surely distinct by the more widely separated eyes, rather more elongate and parallel form and elytral pattern. The arcuate series of white spots extending obliquely inward from the humeri to the suture, so persistent in *adspersus*, is here represented by a single small spot posteriorly adjacent to the humeral umbone.

PIAZURUS Sch.

P. floridanus n. sp.—Intermediate in form between *oculatus* and *californicus*, but much larger than either. Dark brownish castaneous, rather obscurely mottled with white and fulvous scales, which are of broader form than in *oculatus;* white sutural spot of the elytra wanting, as are the basal thoracic spots. Eyes still more narrowly separated than in *oculatus;* second funicular joint of antennæ fully twice as long as the first and equal in length to the four following united. Elytral striæ wider, the punctures larger, leaving the intervals narrower, more convex and more irregular than in *oculatus.* Otherwise nearly as in *oculatus*. Length 5½ mm.; width two and one-fifth mm.

Florida (Key Largo and Elliot's Key).

Described from two examples received from Mr. Beyer.

ZYGOPS Sch.

Z. adustus n. sp.—A little less robust than either *seminiveus* or *suffusus*, the sides of the prothorax less strongly convergent in front and more abruptly subrectangularly constricted at apex, with the surface sculpture distinctly more coarsely cribrate punctate than in *seminiveus.* The prothorax is blackish brown above, the sides and under surface uniformly pale ochreous; elytra deep umber brown, feebly mottled, the suture paler; scales beneath in great part pale ochreous, the sides of the metasternum broadly, sides of second ventral segment narrowly, and the last ventral, except at the middle, dark brown; legs ochreous, femora suffused with pale brown apically, the subapical annulus not very well defined. Length 7.5 mm.

Arizona (Wickham); Santa Rita Mountains, Arizona, in *Agave palmeri* (Hubbard and Schwarz collection).

The form and sculpture of the prothorax, and the color readily distinguish this species from *seminiveus* and *suffusus.* In the last named species a good character not mentioned by Casey exists in the more broadly rugose discal elytral costæ, these being relatively narrow and with a single series of asperities in *seminiveus.* There is some individual variation, but the difference is obvious enough in all specimens seen.

THE NORTH AMERICAN BEES OF THE FAMILY ANTHOPHORIDÆ.

BY T. D. A. COCKERELL.

The time is hardly ripe for a monographic revision of our Anthophoridæ. Almost every new collection that comes to hand contains undescribed species, and of many species only one sex is known. The material gathered for the Biologia Centrali-Americana, which will shortly be described by Col. Bingham, will add greatly to our knowledge.

In the meanwhile, however, it has become necessary to put the already gathered information into better order, to facilitate further progress. In 1904 I spent some time studying Smith's types at the British Museum; and in 1905 I have been able to examine types or cotypes of nearly all those described by Mr. Cresson; so that, having seen authentic material of most of the forms, it has become possible to construct tables for *Anthophora*, *Melissodes*, *Tetralonia* (*Synhalonia*), etc. These tables are now offered, together with a check list, showing the present generic position of all the species, and their distribution. I have omitted from the tables numerous species described by Mr. C. Robertson, which I have not seen; but these will be found tabulated in Trans. Am. Ent. Soc. xxxi, 365 372. The species of *Melissodes*, *Tetralonia*, etc., are all thrown together in one series of tables, a plan which will, I think, be found convenient.

It is perhaps hardly necessary to say that the groups adopted in these tables are largely artificial, intended merely to facilitate the recognition of the species. Whenever it seemed possible that a species might be looked for under more than one group, the name has been given in each, with comparative notes. In the check list, I have added the names of the principal flowers visited by the bees. In most cases these will be found to be highly characteristic; but in some instances probably not, because bees which habitually visit certain flowers may be seen occasionally on others, and the males may suck where the females would never gather pollen.

The species are for the most part strong fliers, and several are very widely distributed. On the whole, however, one is surprised at the comparatively restricted distribution of the larger number. Thus, after collecting for years in New Mexico, I examined Snow's Arizona collection, and found therein a whole series of forms which I had never seen in the former Territory. Then, again, the material from Southern California, obtained by Davidson, introduces us to still another quite distinct series. Some species range all the way from New Mexico to Los Angeles, but comparatively few. This restricted distribution is probably connected with the fact that many of the species are attached to particular flowers; and it is possible that among these ground-nesting bees the character of the soil may not be wholly unimportant.

Anthophora, *Clisodon* and *Tetralonia* are what might be called palæoboreal types, probably of boreal origin in ancient times, and now inhabiting both hemispheres. *Anthophora*, to day, is abundant, even in Australia ; and it is curious, as showing the persistence of an apparent trivial character, that certain of the Australian species differ in the clypeal markings just as do our *A. smithii* and *walshii*. All the other genera are strictly American, and apparently of austral origin.

In the Eucerine series there is a gradual reduction of the number of joints in the maxillary palpi, from six (*Tetralonia*) to three (*Macroglossapis*). Holmberg describes a South American genus said to be a Eucerid, in which these palpi are only two-jointed (*Melissoptila*). Holmberg's *Thygater*, with the maxillary palpi three-jointed, may prove not to be separable from *Macroglossapis;* in this case the latter name has priority, having been published in 1899 (Cat. Abejas de México, p. 14). From a remark by Mr. Schrottky, I infer that Holmberg's *Chacoana* is probably a synonym of *Epicharoides*.

ANTHOPHORA Latr.

GROUP A.

Hind part of thorax covered with very bright red hair ; rest of thorax above with black or black and grey mixed.

First abdominal segment covered with bright red hair; abdomen without tegumentary bands .... **tricolor** Lep.

Abdomen with creamy or white tegumentary bands at apices of segments. **krugii** Cress.

NOTE.—*A. tricolor* is recorded from Guadalupe and Hayti ; *A. krugii* from Porto Rico.

GROUP B.

Black species; thorax above covered with black or brown-black hair.

Large robust species, over 15 mm. long; hair of legs black, but shining white on outer side of hind tibia and basal half of first joint of hind tarsus.
carbonaria Cress.=**infernalis** D. T.
Much smaller, less than 13 mm. long..1.
1. Femora dark chestnut (Cuba)..............................**atrata** Cress. ♂.
Femora dark chestnut, but anterior ones almost black; fifth abdominal segment covered with bright orange-fulvous hair (Nevada).
pernigra Cress. ♀.

NOTES.—The name *carbonaria* is a homonym, so Dalla Torre proposed *infernalis.* I had been erroneously informed that *infernalis* was an *Emphoropsis,* and so was led to redescribe it as *A. corvicolor.* A comparison of descriptions indicates that *corvicolor* may possibly rank as a variety, but it certainly is not a distinct species. *A. atrata* and *pernigra* are so much alike, that were it not for the totally different localities, one might imagine them to be sexes of one species.

GROUP C.

Medium sized or large species; abdomen with tegumentary white or creamy bands

I have given a table of this group in Bull. So. Cal. Ac. Sci., 1904, and other remarks in Canad. Entom., 1905, p. 335. I offer now my notes from the Cresson collection.

Larger; hair of thorax above fulvous, not mixed with black....................1.
Rather smaller; hair of thorax above with much black intermixed...............2.
1. Clypeus of ♂ with a large quadrangular black patch on each side above (Illinois)..**walshii** Cress.
Clypeus of ♂ with very small marks above (Colorado)......**smithii** Cress.
2. Hair of thorax above except the black, mouse-grey.
marginata Smith, and **cleomis** Ckll.
Hair of thorax above, except the black, ochracous or fulvous..............3.
3. Tegulæ of both sexes black ....**californica** Cress.
Tegulæ (♀) bright shining copper red, semi-translucent......**texana** Cress.

NOTES.

(1.) *A. marginata* and *cleomis* are not separable in the ♀. The Cresson collection contains three ♂ *marginata,* from Mexico. The British Museum has males regarded as *marginata,* but they are of two species. The ♂ *marginata* described by Dours is different from *cleomis.* My impression is, that Dours' ♂ was not the true insect, and that *marginata* and *cleomis* are really one species.

(2.) I cannot separate the females of *smithii* (from Dacota) and *walshii* (from Illinois); but the males are readily separated. Townsend's ♂ "*walshii*," recorded from Vega S. José, New Mexico, is really *smithii*. *A. cardui* Ckll. differs from *smithii* in the color of the pubescence, but I now believe that it is only a variety. In the clypeal marking it agrees with *smithii*, not with *walshii;* my former statement to the contrary arose from a misunderstanding of "spots" in Cresson's account of *walshii*.

(3.) The type of *californica* is an unusually small male. The New Mexico "*californica*" (of Trans. Am. Ent. Soc., xxiv, 155) is to be referred to *texana*.

GROUP D. (Subg. nov. *Micranthophora*, type *curta*.)

Small species, less than 11 mm. long (about 11 mm. long in ♀ anstrutheri), with grey or whitish pubescence, and no tegumentary color bands.

Hair of thorax above black or mixed with black ....1.
Hair of thorax above without black.......................................6.
1. Clypeus white in ♂, with a white apical band in ♀; eyes, dark purplish; hair of thorax above pale grey, with a moderate amount of black intermixed; size larger than *A. exigua*..................**phenax** Ckll.
Apical band or other marking of clypeus light yellow....................2.
2. Females; apical patch of hair on fifth abdominal segment black...........3.
Males...5.
3. Small; flagellum bright red beneath..................**petrophila** (Ckll.)
Larger; flagellum all dark..4.
4. Bases of abdominal segments nude, and appearing black; hair on inner side of basal joint of hind tarsi ferruginous.................**curta** Prov
Bases of abdominal segments covered with hair, which is rather yellowish; hair on inner side of basal joint of hind tarsi black or brown-black. **anstrutheri** Ckll.
5 Hair of mesothorax practically all black; of metathorax white, without any black; apical band on clypeus light yellow; a transverse supraclypeal mark: anterior edge of labrum with a median process; apex of abdomen bidentate.................................**exigua** Cress.
Hair of mesothorax white or whitish, with only a moderate amount of black intermixed; no supraclypeal mark.....................**curta** Prov.
6. Middle tarsi enormously elongated; middle femora with apical half bright red; anterior tarsi distorted..7.
Legs not so...8.
7. Eyes green; seventh abdominal segment with a black lobe on each side. **flexipes** Cress.
Eyes yellow; pubescence whiter than in *flexipes*, and apical teeth of abdomen shorter, and not diverging at apex, as they do in *flexipes*. (Denver, Colo.)...**albata** Cress.

The type of *A. petrophila* has the thorax denuded, so the name is given under both categories.

8. Fifth abdominal segment (♀) black, contrasting with the rest, the middle being occupied by a triangular patch of black tomentum, the sides with inconspicuous light hair: flagellum red beneath; size at least as large as *maculifrons* or *albata*.... ....**flexipes** Cress.
Fifth abdominal segment covered, at least over the greater part, with light tomentum, and so not contrasting with the others.................9.
9. Females..10.
Males..13.
10. Apical triangle of hair on fifth abdominal segment black................ 11.
Apical triangle of hair on fifth abdominal segment fulvous or brownish...12.
11. Pubescence creamy-white; fifth abdominal segment with a *small* apical triangle of black pubescence; flagellum red beneath: face-marks cream-color ....**albata** Cress.
Face-marks decidedly yellow; face broader (California).
petrophila (Ckll
12. Pubescence ochraceous, quite fulvous on occiput; base of second abdominal segment broadly bare and black; fifth with the apical triangle bright fulvous; flagellum very dark reddish beneath: face-marks yellow, the band on clypeus sending no streak upward in the middle line.
maculifrons Cress.
Pubescence white; base of second abdominal segment covered with hair: fifth with the apical triangle light brownish; flagellum bright red beneath; band on clypeus sending a stripe upwards in the middle line, and face-marks very pale.... ....**arthuri** Ckll.
13. The two apical teeth of abdomen large, reddish, rounded at apex........ 14.
The two apical teeth of abdomen reddish, but small and spine-like, not greatly larger than the dark lateral teeth; pubescence white; scape all black........ ....**curta peritomæ** Ckll.
14. Pubescence pale ochraceous, not fulvous on occiput; tarsi bright red, except perhaps basal joint of hind tarsi; flagellum dark red beneath; clypeal yellow band as in ♀, sending no streak upward; lateral basal teeth of seventh abdominal segment small and dark.
maculifrons Cress.
Similar, but tarsi darker, and yellow reaching upper margin of clypeus in median line; scape yellow in front...........**flavocincta** Huard.

GROUP E. (Series 1.)

Species of rather large or large size; thorax above with conspicuous black, as well as pale, hair; abdominal bands, when present, due to hair.

Mesothorax with pale ochreous hair, but all of thorax behind level of wings with black hair; size larger than *bomboides*......**stanfordiana** Ckll.

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[1] In *A. solitaria* Bits., the hair on inner side of basal joint of hind tarsi (♀) is splendid red-golden; in *stanfordiana* this hair is dark. In Canad. Entom., 1905, pp. 313-314, Mr. Viereck erroneously credits *solitaria* to me, and in his table makes it different from *insularis*. It is, of course, the same as *insularis*, being merely a substituted name.

A large patch of black hair between the wings, but anterior part of mesothorax and scutellum, with no admixture of black; hind legs covered with black hair (Pennsylvania)...... ....**bomboides** Kirby.
The black hair interspersed among the rest, not forming a definite patch......1.
1. Abdomen with dense, entire, well-defined hair-bands.....................2.
Abdomen with thin, interrupted hair-bands, or none (the species of this group are superficially very much alike).................................3
2. Hair-bands of abdomen fulvous (Catalina I)....... ....**catalinæ** Ckll.
Hair-bands of abdomen pale ochreous ....**urbana** Cress.
Hair-bands of abdomen white; larger than *urbana*, with the third antennal joint much longer..........................**washingtoni** Ckll.
3. Males...4.
Females ....6.
4. Middle tarsi with very long pure white hair, some black on first joint; face-marks deep chrome yellow.......................**pacifica** Cress.
Middle tarsi with red hair; last joint with a black fringe ....5.
5. Scutellum without any intermixture of black hair; abdomen without light bands; upper part of clypeus black, except a small median mark.
ursina Cress.
Scutellum with black hair intermixed; abdomen with at least traces of light bands; clypeus yellow, with two large black marks on upper part.
simillima Cress. (syn. *euops* Ckll.).
6. Very large and robust; abdomen not at all æneous or bluish; hair of scutellum white with no admixture of black..............**porteræ** Ckll.
Abdomen distinctly æneous or bluish; scutellum with some black hair; third abdominal segment with some or much black hair; hair on outer side of hind tibiæ shining white....................................7.
7. Larger, size of *porteræ;* second abdominal segment with some black hairs.
ignava Cress.
Smaller; second abdominal segment with hair all white, strongly contrasting with third..8.
8. Third abdominal segment with the hair all black, except the thin (broadly interrupted) apical band.......................**edwardsii** Cress.
Third abdominal segment with the hair mixed black and white throughout.
gohrmanæ Ckll.

GROUP E. (Series 2).

Large species; hair of thorax above without black.

(The division of group E into series 1 and 2 is purely artificial for convenience of identification. In the case of *A. gohrmanæ*, the sexes fall in different sections.)

Males ....1.
Females ....6.
1. Large; apical part of abdomen thickly covered with yellowish or fulvous hair, like the anterior part; basal joint of hind tarsi spined about the middle..................................**occidentalis** Cress.
More than apical half of abdomen appearing black, being bare or with mainly black hair... ....2.
2. Basal joint of hind tarsi spined or toothed in front.....................3.

Basal joint of hind tarsi curiously bulging in front, but not spined or toothed...4.

Basal joint of hind tarsi neither spined, nor toothed, nor bulging...........5.

3. Hair of thorax and base of abdomen above very bright orange-fulvous; face broad; face-markings cream color......... ....**sodalis** Cress.

Hair of thorax, etc., greyish white.................. ....**gohrmanæ** Ckll.

4. First abdominal segment covered with ochreous hair, which neither overlaps nor extends onto base of second segment; hair of thorax above ochraceous; face-marks light yellow; abdomen curiously narrowed apically ....**centriformis** Cress.

Differing from typical *centriformis* in having face-marks, labrum, etc., white; tegulæ lighter and redder; abdomen beyond first segment with a good deal of fine white pile, conspicuous on margins of segments; hind margins of abdominal segments broadly whitish (Alamogordo, New Mexico, May 13, *Viereck*).......**centriformis vierecki** n. subsp.

5. Last joint of middle tarsus with an extremely broad black fringe; pubescence of thorax and base of abdomen above very bright orange-fulvous; face-marks deep chrome yellow; face very narrow..**crotchii** Cress.

Last joint of middle tarsus without such a fringe; face broader. **fedorica** Ckll.

6. Fourth abdominal segment covered with fulvous hair like the first, second and third....................................**occidentalis** Cress.

Fourth abdominal segment not covered with fulvous hair..... ... .7.

7. Second and third abdominal segments covered with bright rufofulvous hair. **neomexicana** (Ckll.).

Second and third abdominal segments not so covered; only the first very hairy............ ....8.

8. Abdomen black, without hair-bands, the light hair confined to first segment.................. ....9.

Abdomen with more or less evident hair-bands........................ ..10.

9. Hair of abdomen above all black, except the basal declivity, which has some pale hair; tegulæ black............... ....**abrupta** Say.

Hair of first abdominal segment all dull white; tegulæ light ferruginous. **abruptella** Ckll.

10. Hair of thorax above fulvous; bands of fine appressed hair on second and third abdominal segments very broad........... .**montana** Cress.

Hair of thorax above very pale ochreous; hair bands on second and third abdominal segments apical and narrow ....**affabilis** Cress.

NOTE.—The Chilian *A. distinguenda* Spinola, is extremely close to *A. montana*.

Anthophora simillima Cresson.

Boulder, Colorado: males at flowers of *Ribes cereum* and loco-weed (*Aragallus*), April 29 (*W. P.* and *T. D. A. Cockerell*), male at flowers of *Viola nuttallii*, sucking, going to three successively (*W. P. Cockerell.*) Fort Collins, Colo., May 15, 1904. ♂ (Colo. Agr. College).

Anthophora curta Provancher.

Antonito, Colo., Aug. 5, 1900, two (*Ball*).

Anthophora porteræ Ckll.

Fort Collins, Colo. (Colo. Agr. College).

Anthophora urbana Cresson.

Fort Collins, Colo., June 27, 1903, ♀ "on yellow sweet clover" (*S. A. Johnson.*)

Anthophora smithii Cresson, form **cardui** Ckll.

Denver, Colo., July 12, 1902 (*S. A. Johnson*).

Anthophora occidentalis Cresson.

Maybell, Colo., Aug. 1, 1904, at thistle (*S. A. Johnson*); Parker, Colo. (*S. A. Johnson*).

Anthophora walshii Cresson.

Fedor, Texas (*Birkmann*).

Anthophora fedorica n. sp.—♂. Length about 16 mm.; black, the head, thorax and first abdominal segment with pale hair, not mixed with black; this hair is strongly tinged with yellowish on the head above and mesothorax, but otherwise is white or nearly so, being long and pure white on the cheeks; eyes greenish-yellow; facial quadrangle longer than broad; mandibles all dark; face markings chrome-yellow, including the labrum (except the narrow anterior edge, and a large spot at each upper corner), clypeus (except narrow anterior edge, and a large irregularly quadrangular mark at each upper corner), a narrow transverse supraclypeal band, and the lateral marks, which end narrowly on orbital margin about the level of antennæ; scape yellow in front, flagellum entirely black; tegulæ ferruginous; wings clear, with a ferruginous stain in upper part of first submarginal cell; abdomen shining black, the hind margins of the segments dark reddish; no hair bands; the second segment beyond the middle, the third and fourth, and the base of the fifth and sixth have short erect black hair; hair about apex white; apical plate broad; legs (including the tarsi) black, with mainly white hair; long hair of middle tarsi black and white mixed; basal joint of hind tarsi neither distorted nor spined or toothed.

Hab.—Fedor, Texas, April 29. (*Birkmann.*) Looks something like a pale example of *A. montana*, but is easily separated by the dark markings of the clypeus and the much broader apical plate, as well as the abundant black hair on the middle tarsus. From *A. crotchii* it is known by its broader face, dark markings of clypeus, and absence of any broad black brush at end of middle tarsus. The clypeal marking resembles that of *A. simillima*, but that differs greatly in the legs, etc.

Anthophora flavocincta Huard. ♂.

This is *A. nigrocincta* Provancher; the name being a homonym, it was changed to *flavocincta* by Huard (Nat. Can., Feb., 1897, p. 25). I have a male, collected in California by Dr. Davidson, and had formerly recorded the species as *A. maculifrons*, to which it is certainly very closely allied. I have now seen the types of *maculifrons*, and find *flavocincta* to differ by the darker tarsi, and the yellow reaching the upper margin of the clypeus in the median line; the apical teeth of the abdomen are about as in *maculifrons*. The female from Bear Valley, Calif., which I had associated with the above male, proves to belong to *A. flexipes;* the second submarginal cell is much broader below in *flavocincta* than in *flexipes*, and the males, of course, have the legs entirely different.

Anthophora petrophila (Ckll.) ♀.

This was described as *A. maculifrons petrophila*, from Rock Creek, Calif. It has the small apical triangle of hair on the fifth abdominal segment dark, and is really nearer to *albata*, of which it may be considered a Californian representative. It differs from *albata* by the decidedly yellow (not creamy) clypeal band, and also the broader face. It is easily known from *A. curta* by the red flagellum.

Anthophora anstrutheri n. sp. (possibly **flavocincta** ♀).—♀. Length about 11 mm.; black, with abundant pale mouse-grey pubescence, which on abdomen forms a dense felt-like surface, speckled with minute black (hairless) dots, but not failing at the bases of the segments, and so without any appearance of black bands; hair of vertex, mesothorax and scutellum with a moderate amount of black intermixed; apical patch of hair on fifth abdominal segment black and rather large; small joints of tarsi reddish; antennæ black; eyes greenish yellow; apical clypeal band chrome yellow, broad, not sending any process upwards; a small transverse supraclypeal mark; tegulæ pale reddish; hair on inner side of basal joint of hind tarsi black.

Hab.—Los Angeles, California (*Dr. Anstruther Davidson*). Allied to *A. curta* Prov., but larger, with the basis of the abdominal segments not dark, and the abdominal hair slightly yellowish; the mandibles also are deeply bidentate, with the inner tooth large. The color of the hair on the inner side of the hind tarsi is also quite different. From *A. flexipes* it is easily known by the fifth abnominal segment having only a black apical patch, instead of being all black; also by the black hair on vertex, and the absence of an upward extension of the yellow clypeal band. From *A. albata* it is known by the yellowish abdominal pubesence, larger size, etc. It is perhaps not impossible that it may be the undescribed male of *A. flavocincta*, but there is no proof that this is the case.

Anthophora arthuri n. sp. (or **albata** var. ?).

At Maybell, Colorado, Aug. 1, 1904, Mr. S. Arthur Johnson took two females of *Anthophora* on yellow flowers of the family Compositæ. I referred one to *A. albata*, as it greatly resembled Cresson's figure of that insect, and the other I called *albata*, variety. An examination of the type of *A. albata* shows that the supposed variety is the true insect, while the supposed typical example appears to represent another species, to which the name *A. arthuri* may be applied. This *A. arthuri* differs from *albata* in being somewhat larger and stouter, but particularly in having the apical triangular patch of the fifth abdominal segment large, and pale greyish brown. The face markings are very pale (as in *albata*), and there is an upright band reaching the upper edge of the clypeus. The mesothorax is densely clothed with white hair, no black being intermixed. The spurs are considerably darker than in *albata*. The flagellum is ferruginous beneath It may be that this is only a variety of *albata*, but it seems best to treat it as a distinct species in the absence of proof to the contrary.

Anthophora abruptella n. sp.—♀. Similar to *A. abrupta*, but decidedly smaller and narrower (width of abdomen 5½ mm., in *abrupta* 6); legs dark ferruginous; clypeus with finer and much closer punctures; eyes yellowish; tegulæ light ferruginous (black in *abrupta*); hair of pleura, except the upper part, black; hair of first abdominal segment all dull white; rest of abdomen practically bare, with a small amount of black hair, the hind margins of the segments obscurely pallid.

Hab.—Los Angeles, California (*Davidson*). I intended at first to treat this as a subspecies of *abrupta;* but it is so far removed geographically, and the characters, though few, are so distinctive, that I describe it as a distinct species.

CLISODON Patton.

Clisodon terminalis (Cresson).

Steamboat Springs, Colo., Aug. 8, 1904. ♀ (*S. A. Johnson*). The pubescence is much more orange than in the New Mexico form.

ENTECHNIA Patton.

Entechnia grisella Ckll. and Porter.

Rocky Ford and Denver, Colo. (*S. A. Johnson*). Mr. Johnson took both sexes, and *E. dakotensis*, C. & P., is the female of *grisella*. Wallace County, Kansas, 3,000 ft. (*Snow*, '89).

CENTRIS Fabr.

Centris mexicana Smith.

Cuernavaca, Mexico, Aug. 1898. (Colo. Agric. College).

The neotropical species of *Centris* are wonderful bees, including such striking types as the following:

Abdomen red (*Rhodocentris* Friese).

Large species...**montezuma** Cress.

Small species..**totonaca** Cress., **fulviventris** Cress. and **dentipes** Sm.

Abdomen with broad yellow (tegumentary) bands (*Pœcilocentris* Friese).

fasciata Sm. (**fasciatella** Friese) and **eisenii** Fox.

(Friese puts *morsei* in this group, but its affinities are all with the *nitida* group of *Melanocentris*.

Abdomen blue or green, apex red (*Cyanocentris* Friese).

hæmorrhoidalis Fabr.

Abdomen black, without light hair at base (*Melanocentris* Friese).

æthiops Cress.

The subgeneric names given by Friese do not take into account the earlier (1807 and 1810) names given by Klug.

DIADASIA Patton.

D. afflicta (Cress.), *D. australis* (Cress.) and *D. enavata* (Cress.) all occur at Fedor, Texas (*Birkmann*). For a table to separate the species of this genus, see American Naturalist, Oct., 1905.

D. nitidifrons Ckll.—A ♂ collected by Dr. H. Skinner at Silver Lake, Wasatch Mts., Utah, 8,600 ft., July 14, greatly extends the range. This species is near *D. afflicta*, but much smaller, with very narrow second s. m., and hair on inner side of basal joint of hind tarsi red. When fresh the abdomen is quite hairy, and there is short black hair at bases of segments 2 and 3.

XENOGLOSSA Smith.

Xenoglossa brevicornis (Cresson).

Fedor, Texas, June 20, 1898 (*Birkmann*).

Xenoglossa pruinosa (Say).

Arizona, Aug., 1902 (*Snow*, 425).

Xenoglossa patricia angustior Ckll.

Congress Junction, Arizona, July (*Snow*, 1008).

DASIAPIS Ckll.

Dasiapis ochracea Ckll.

Oak Creek Canon, Arizona (*Snow*, 2005).

MELISSODES and allies.

MALES.

Group A.—Clypeus black.

Series 1.—Labrum yellow or cream color = *Macroglossapis* Ckll.

Labrum cream color; antennæ very long, flagellum fulvous beneath; thorax with fulvous pubescence, black anteriorly; abdomen shining black, without bands; clypeus longitudinally carinate; maxillary palpi 3-jointed............**Macroglossapis montezuma** (Cress.).

(The ♀ of *M. montezuma* has the pubescence of thorax above fulvo-ferruginous, black in front like ♂; of pleura also black; clypeus carinate; pubescence of legs black, ferruginous on inner side of anterior tarsi.)

Melissodes albilabris Cress., also falls here, and is to be called *Macroglossapis albilabris;* the type shows the 3-jointed maxillary palpi well. This species has the hind margins of the abdominal segments very broadly yellowish, with shining golden hairs—a very pretty effect.

The type of *Macroglossapis* is *oribazi* Rads., which Friese says is a synonym of *analis* (Lep.); other species have been described by Smith. The following characters are useful for the separation of the males of this genus.

M. terminata (Sm.) Hair of thorax above cinereous; labrum yellow.

M. albilabris (Cress.) Hair of thorax above with a band of fuscous across anterior part, and some fuscous on scutellum.

M. montezuma (Cress.) Hair of thorax fulvous, black in front; labrum yellowish white.

M. modesta (Sm.) Hair of thorax above wholly pale fulvous; labrum yellowish-white.

M. analis (Lep.) Hair of thorax whitish; but if *oribazi* is the same, it is black in the ♀.

M. rubricata (Sm.) Male unknown, but no doubt has a reddish abdomen, like the ♀.

SERIES 2.—Labrum black.

Antennæ very long, entirely black, strongly crenulate.
Tetralonia hirsutior (Ckll.).
Antennæ with flagellum fulvous or ferruginous beneath .... **Melissodes** spp.

In Entomologist, July, 1902, p. 177, I have given a table to separate the species of *Melissodes* falling in this series; since then one species (*M. semitristis* Ckll., from Arizona) has been added. The following notes will be useful:

M. tristis Ckll. Mandibles with no yellow spot.

M. sphæralceæ Ckll. Mandibles with a yellow spot; sides of apical part of abdomen with three teeth, but middle tooth not nearly as large as in *intorta.*

M. intorta Cress. Antennæ not half as long as in *tristis;* hind margins of abdominal segments narrowly dull white; three teeth on each side of apical part of abdomen, the middle one very large, and peculiarly formed; palpi seem normal for *Melissodes;* abdomen not banded.

M. personatella Ckll. Antennæ very long; flagellum ferruginous beneath; mesothorax with black hair. Length 10 mm.

M. semitristis Ckll. Stature of *M. menuacha,* but black clypeus and broader face of *tristis.*

The two following species are not strictly of this group, but they should be compared with it:—

M. prælauta Ckll. Looks like *semitristis,* but clypeus greyish-white, face narrowed below, eyes black, pubescence pure white on head and mesothorax (Arizona).

M. hexacantha Ckll. Also from Arizona. Clypeus black with a yellow band in front; antennæ not nearly so long as in *tristis;* lateral spines of end of abdomen six (instead of the usual four). Differs at once from *Xenoglossa angelica* by the black tegulæ, and scutellum with black hair; by the same tokens it also differs from *X. pruinosa.*

M. hexacantha is quite variable, as follows:—

Var. a.—Thorax above without black hair, except half a dozen or less on mesothorax; hair of abdominal segments 5 and 6 black.

Var. b.—Lower half of clypeus yellow, and a yellow process directed upwards in middle line

Var. c.—Yellow of clypeus much reduced.

GROUP B.

Clypeus light; labrum dark, wholly or partly.

(In *intrudens, snowi, dentiventris* and *vernonensis* the labrum has a large yellow or light spot)

SERIES 1.—Flagellum dark, not red beneath.

Abdomen beyond middle of second segment black, with long black hair, and no light hair or bands; lateral margins of yellow of clypeus not notched.
Tetralonia intrudens (Cress.).

(See also *Tetralonia actuosa* Cress., peculiar for the ventral teeth or keels near apex of abdomen. The northern form of *actuosa* recorded by Viereck appears to differ a little, in that the first r. n. joins the second s. m. at middle, whereas in typical *actuosa* it joins it about or even beyond the beginning of the last third.)

Abdomen beyond middle of second segment with pale hair, and more or less evidently banded....... ....1.

1. Upper part of clypeus black; flagellar joints with light dots beneath.
Melissodes microsticta Ckll.

Upper part of clypeus not black; flagellar joints without light dots beneath..2.

2. Larger; pubescence of thorax above fulvous; hind margins of abdominal segments not hyaline... ....**Tetralonia honesta** (Cress.).

Smaller; pubescence of thorax above pallid, with a yellowish tint; hind margins of abdominal segments broadly hyaline.
Melissodes confusa Cress.

Smaller than *confusa*; abdomen not conspicuously banded; middle and hind tarsi remarkably long and slender, which distinguishes it at once from *microsticta* or *confusa* (Arizona)............**M. tenuitarsis** Ckll.

SERIES 2.—Flagellum more or less red beneath (all *Melissodes*.)

Scutellum without black hair................. ....1.

Scutellum with black hair (only a little in *otomita*); hair on inner side of basal joint of hind tarsi pale or ferruginous...... ....3.

1. Hair of thorax snow-white; nervures honey color ... .**M. snowi** Cress.

Larger than *snowi*; hair of mesothorax snow-white, of scutellum yellowish; clypeus greyish white; labrum black, with a large light spot (Arizona).
M. prælauta Ckll.

Smaller than *snowi* or true *agilis* (*snowi* and *agilis* are the same size, and distinguished by pubescence ochreous tinted (as in *agilis*), and labrum entirely black (in *snowi* it has a very large yellow spot); eyes light green. Very much smaller and quite different from *rivalis* (Colorado, Arizona)...... ... .**M. agilis subagilis** Ckll.

Hair of thorax ochreous . ...2.

2. Abdomen without pale hair bands; hair on inner side of b. j.[*] black.
desponsa Sm.

Abdomen with pale hair bands; hair on inner side of b. j. ferruginous.
rivalis Cress.

3. Hair of thorax whitish or cinereous and black.........................4.

Hair of thorax ochreous and black............... ....7.

4. Antennæ comparatively short; small species; hind margins of abdominal segments 2–5 broadly covered with bright orange-fulvous hair.
otomita Cress.

Antennæ long; larger species.......... .... .5.

"b. j." in these tables means basal joint of hind tarsi.

5. Abdominal segments 3-5 practically covered with pubescence; labrum with a
very large yellow spot................ ...... **vernonensis** (Viereck).
Abdominal segments 3-5 with the surface exposed, except at the bands.....6.
6. Larger; abdomen duller, more banded and more punctured
fimbriata Cress.
Smaller; abdomen shinier, less banded and less punctured.
perplexa Cress.
In *fimbriata* the hair on exposed part of abdominal segments 4 and 5 is black.
7. Smaller; hind margins of abdominal segments black; antennæ long (Cuba).
mimica Cress.
Larger; hind margins of abdominal segments hyaline... ... ...8.
8. Black hair of thorax almost or quite confined to scutellum; tegulæ without
black hair....... ....**gilensis** Ckll.
Mesothorax with a good deal of black hair; tegulæ with black hair.
grindeliæ Ckll.

NOTES.

1. *M. desponsa* Sm., det. Cresson, has the labrum black with a round yellow spot; scape black; flagellum red beneath; upper edge of clypeus fringed with dark hairs. *M. cnici* Rob., has the same characters except that it seems larger, and the labrum lacks the yellow spot.

(2.) *M. confusa* Cress., has the labrum all black; flagellum all brown-black, with raised longitudinal lines; clypeus with black spot on each side; abdomen with pale hair bands.

(3.) *M. otomita* Cress., has a light spot on mandibles.

(4.) *M. fimbriata* Cress., has the hair bands and b. j. of *rivalis*; but in *rivalis* the hair of thoracic dorsum is pale ochreous; while in *fimbriata* it is dull white, and black in the middle, and the abdomen of *fimbriata* is more hairy.

(5.) *M. perplexa* Cress., has the labrum all black, and the clypeus cream colored, with the upper part largely black; while *M. manipularis* Sm., has the labrum with a large yellow spot, and the clypeus yellow. Both species occur in Georgia.

(6.) The labrum has more or less black at sides in *M. menuacha* *M. agilis* and the Cuban *Florilegus lanieri*.

GROUP C.

Clypeus and labrum light; thorax above with conspicuous black or fuscous hair, at least on scutellum. (In *M. coloradensis* there are only a few dark hairs; the black hair could not be called conspicuous.)

Scape entirely clear ferruginous; legs all red; robust species, with antennæ only
of moderate length ... .**Melissodes texana** Cress.
Scape dark brownish or black (*Melissodes*)..... ... ...1.

1. Apical half of abdomen black, without conspicuous (if any) light markings; large species; antennæ of moderate length ....2.
Apical half of abdomen with conspicuous light bands or markings due to hair, or entirely fulvous ....3.
2. Hind legs with ferruginous hair ....**comanche** Cress.
Hind legs with black hair ....**caliginosa** Cress.
3. Abdomen with the general color light fulvous ....4.
Abdomen black, with a whitish hair band on segment 4, and whitish patches at sides of 3; hair of apex rufous ....**coloradensis** Cress.
Abdomen with conspicuous whitish hair bands on segments 2–4............5.
4. Larger; abdomen all fulvous, except a darkening at the bases of segments, due to tegument showing through ....**townsendi** Ckll.
Smaller; abdomen with the base sparsely haired and appearing black, and the hair of the apical segment black ....**montana** Cress.
5. Hair of abdominal venter and inner side of b. j. dark fuscous or black. **obliqua** Say.
Hair of sides of abdominal venter white, of inner side of b. j. ferruginous...6.
6. Face narrower; tegulæ light reddish; abdominal bands very broad. **suffusa** Cress.
Face broader ....7.
7. Tegulæ dark; abdominal bands narrow; mesothorax with much black hair. **communis** Cress.
Tegulæ red; larger than *communis* (but var. a. has stature of *communis*); thorax with little dark hair, and that on scutellum; wings strongly yellowish (Kansas) ....**hortivagans** Ckll.

NOTE.—The following should also be compared:

(1.) *M. vernonensis* (Viereck), a form from Vernon, British Columbia, regarded by Viereck as a race of *M. menuacha*. It is covered with dull white hair; abdomen very hairy; tegulæ dark, covered with light hair; labrum black, with a very large yellow spot.

(2.) *M. duplocincta* Ckll., from Arizona, with appearance of *Tetralonia lippiæ*. It has five bluish white bands on abdomen; upper lateral corners of clypeus black; tegulæ light fulvous. A much more slender species than *suffusa*, with the pubescence an entirely different color.

(3.) *M. parosetæ* Ckll., from New Mexico. Smaller than *duplocincta*; tarsi red; pubescence of thorax in front light fulvous; clypeus all yellow, except a black spot on each side.

GROUP D.

Clypeus and labrum light; thorax above without dark hair; hair of hind legs black or fuscous (more or less pallid in *georgica*); *abdomen not strongly banded, its apex with black hair.*

Tegulæ dark; hair of third abdominal segment mixed black and white.
Melissodes atrifrons Sm.

Tegulæ light fulvous ....1.

1. Larger ....**M. Epimelissodes atripes** Cress.
Smaller ....**M. georgica** Cress.

GROUP E.

Clypeus and labrum light; thorax above without dark hair; flagellum all dark (mostly *Synhalonia*).

Mandibles with a large light spot; last joint of flagellum acuminate, curved and pointed ....1.

Mandibles without a light spot, or (in *lepida, saoriana* and *fedoris*) with a very small one ....2.

1. Abdominal hair bands broad and dense, pale ochreous..**nevadensis** Cress.
(The supposed *nevadensis* from Las Cruces, New Mexico, as shown by the specimens in collection Amer. Ent. Soc., is not that species at all. It has black hairs on scutellum, and runs near *obliqua*.)
Abdominal hair bands less developed.......**Anthedon compta** (Cress.).
The range of *compta* is unexpectedly extended by a male taken by Prof. C. P. Gillette on Cheyenne Mountain, near Colorado Springs, Colo., July 9, 1905.

2. Abdomen covered with fulvous hair ....3.
Abdomen without such hair (*Tetralonia*) ....4.

3. Smaller; abdomen redder; second t. c. nearly straight; hair of cheeks and pleura pale fulvous...........**Tetralonia fulvohirta** (Cress.).
Larger; abdomen not so red; second t. c. with a double curve; hair of cheeks and pleura white..................**Melissodes herricki** Ckll.

4. Apical part of abdomen black, with dark hair ....5.
Apical part of abdomen with light hair; yellow of clypeus notched at sides..8.

5. A tuft of white hair just in front of apical plate; yellow of clypeus deeply notched laterally; middle tarsi peculiar...**T. fulvitarsis** (Cress.).
No tuft of white hair at apex ....6.

6. Upper lateral borders of clypeus black, the yellow not notched; hind spurs normal...................................**T. atriventris** (Sm.).
Yellow of clypeus more or less notched or concave at sides ....7.

7. Hair of thorax above light fulvous.
T. edwardsii Cress.; syn. *angustior* Ckll.
Hair of thorax above very pale ochraceous; apical two segments of abdomen with most of the hair reddish, some hairs on penultimate segment shining coppery; basal joint of middle tarsus curved; differs conspicuously from *edwardsii* in having hair of second abdominal segment wholly pale.............................**T. californica** (Cress.).

8. Hind spurs of hind legs twisted and hooked.
T. dilecta Cress. (= **speciosa** auctt. not Cress.).
Hind spurs normal ....9.

9. Smaller; mesothorax shining and strongly punctate; pubescence yellower than in *frater*.............................**T. lepida** (Cress.).
Larger...10.

10. Hair of thorax and first abdominal segment bright fulvous.
T. astragalina (Ckll.).
Not thus brightly colored ....11.
11. Mesothorax dull and granular; pubescence paler than in *lepida*.
T. frater (Cress.).
Mesothorax shining and punctate (Kansas).
T. gillettei snoviana (Ckll.).
See also *T. fedori* Ckll. and *T. birkmanniella* Ckll.

NOTES.

(1.) *T. intrudens* (Cress.) differs from the above by having the labrum dark, with a large yellow spot.

(2.) *T. territella* Ckll. may be looked for under 5; it, with the Californian *T. actuosa* (Cress.) form a little group distinguished by having ventral subapical teeth on abdomen, and the mesothorax dull. They are distinguished as follows:

T. territella: labrum all light; margins of clypeus not black; thin whitish hair bands on abd. s. 5 and 6; rather small, pubescence all dull white.

T. actuosa: labrum black, with a large yellow spot; margins of clypeus black; thin hair band on sixth abd. s. fulvous, and more on fifth.

GROUP F.

Clypeus and labrum light; thorax above without dark hair (a few dark hairs in *coloradensis*); *flagellum red or fulvous beneath* (mostly *Melissodes*).

Rather large; abdomen black, with hair bands on 4 and 5, and patch on each side of segment 3; mandibles with a yellow spot.
M. coloradensis Cress.
Abdomen not so marked; when bands are developed, the band on third segment continuous ....1.
1. Hair of thorax above white ....2.
Hair of thorax above fulvous (very pale yellowish in *pleuacoides*) ....4.
2. Tegulæ dark; eyes green; nervures fuscous ....**M. lupina** Cress.
Tegulæ light; eyes greyish or reddish ....3.
3. Abdomen covered with short white tomentum.
Xenoglossodes albata (Cress.).
Abdomen with very thin loose pubescence; hind margins of segments very broadly hyaline; nervures light ferruginous......**M. agilis** Cress.
4. Larger; about 14 mm. long; hair of abdomen pale fulvous.
M. menuacha Cress.
11-13 mm. long; hair of thorax above fulvo-ochraceous; last three abdominal segments with black pubescence.
M. comptoides Rob. (from description).
Smaller; less than 12 mm. long; apical part of abdomen 4 spinose ....5.

5. Hair of fifth abdominal segment all black; even at sides (Texas).
M. galvestonensis Ckll.
Hair of fifth abdominal segment black, except at extreme sides... ....6.
Hair of fifth abdominal segment at least partly light on disc........ ......7.
6. Wings paler: second submarginal cell smaller........**M. tepaneca** Cress.
Wings darker: second submarginal cell much larger: otherwise same, and perhaps only a race of *tepaneca* ....**M. kallstrœmiæ** Ckll.
Like *kallstrœmiæ*, but pale yellowish (not white) hair of thorax above, and the white (instead of pale fulvous) hair bands of abdomen.
M. kallstrœmiæ phenacoides Ckll.
7. Middle and hind legs dark or rather light ferruginous; abdomen with metallic tints Cuba).... ....**Florilegus lanieri** (Guér.)
(*F. condigna* Cress., syn. *palustris* Rob. also runs here, and is scarcely to be separated.)
Middle and hind legs black ....8.
8. Subapical spines of abdomen red; hind margins of abdominal segments black.
"**M. pennsylvanica** Lep. ?" in coll. Amer. Ent. Soc.
Subapical spines of abdomen black; hind margins of abdominal segments whitish ....**M. aurigenia** Cress.

NOTE.—The above "*pennsylvanica?*" does not agree well with Lepeletier's description, which states that the clypeus is "blanc sale," hair of head and thorax ashy red, lower borders of abdominal segments *largely discolored with reddish,* nervures pale red. Robertson thought he recognized *M. pennsylvanica*, but later concluded that there was no proof of identity, and described his species as *M. trinodis* Rob.

FEMALES.

GROUP G.

Pubescence of thorax above all, or nearly all, black; of pleura also black.

Pubescence of face below antennæ white or whitish ....1.
Pubescence of face below antennæ black.... .... 2.
1. Smaller; a large white patch on each side of fourth abdominal segment (Mexico) ....**M. atrata** Smith.
Larger: abdomen without white patches ....**M. caliginosa** Cress.
2 Very large and robust, about 22 mm. long; abdomen, except base, covered with a felt-like fulvous tomentum...**Xenoglossa gabbi** (Cress.).
Much smaller: 11 mm. long or less; abdomen with black pubescence.......3.
Not quite so small; 12 mm. long: entirely black, with black pubescence; abdomen shining, nearly naked (Cuba)...............**M. maura** Cress.
3. Larger; fourth abdominal segment with a large white patch on each side.
M. bimaculata Lep.
Smaller: fourth abdominal segment with no white patches (Cuba).
M. pullata Cress.
(For a more extended table of the *bimaculata* group, see Canad. Entom., July, 1905, p. 266.)

NOTES.

(1.) *Melissodes raphaelis* Ckll. is to be compared with *atrata.* It differs by having the pubescence of thorax above partly grey: patches on fourth abdominal segment yellowish; pubescence of pleura partly grey and partly black.

(2.) *M. morosa* Cress., from Mexico, may also be compared with *atrata.* It is about 12½ mm. long; thorax clothed with short dense black pubescence, with a slight admixture of ochraceous on prothorax and mesothorax; head with ochraceous pubescence, mixed with black on vertex and occiput; abdomen with ochraceous markings, including broad apical margins of segments 3 and 4, and oblique lines on sides of 2; legs with short black pubescence; posterior tibiæ and tarsi with long yellow pubescence; hair fuscous on tarsi within.

(3.) *Xenoglossa apiculata* (Cress.) differs at once from *M. caliginosa* by having abdomen beyond second segment covered with orange-red hair, and hair on hind legs all black or brown-black; hair of thorax brown-black, but sides of mesothorax, especially above and behind tegulæ, have ochreous hair, quite pale; hair of face and front pale ochreous.

From *X. gabbi* it differs thus:

Larger; red of abdomen covering second segment.... ... .**gabbi** Cress.
Smaller; red of abdomen not covering second segment.. ...**apiculata** Cress.

Group H.

Pubescence of thorax above not at all black, or if so, of pleura not black; abdomen black, without bands, or with only traces of them; hair of apex black, without light markings.

Base of abdomen without light hair; vertex shining; pubescence of thorax ochraceous, short and dense; hind tarsi with long black hair; wings strongly smoky ....**Emphor bombiformis** (Cress.).
Base of abdomen with more or less light hair ....1.
1. Hair of hind tibiæ and tarsi wholly black or dark purplish fuscous .... 2.
Hair of hind tibiæ at least largely pale, whitish or reddish ... ...4.
2. Hair of vertex and thoracic dorsum all ochraceous; base of second abdominal segment with pale hair; large species, about 16 mm. long; wings fuliginous........ **Melissodes (Epimelissodes) atripes** Cress.
Hair of vertex black; of pleura also black; base of second abdominal segment without pale hair ... ...3.
3. Larger; hair of face black, of mesothorax in front ochreous, with at most the edge black haired; clypeus not carinate.
M. atrifrons Sm. = **carolinensis** D. T.

Smaller; about 12½ mm. long; hair of face mixed black and greyish; anterior half of mesothorax black haired, hind part with fulvous hair; clypeus longitudinally carinate **Macroglossapis montezuma** (Cress.).

4. Ventral surface of thorax with light hair; legs without black hair.
Melissodes dubitata Cress. (= **Tetralonia atriventris** fide Rob.).

Ventral surface of thorax with black hair; hair of legs black, except on hind tibiæ and base of their tarsi; a concave shining space on each side of ocelli.................... **M. cnici** Rob. = **desponsa** Sm., Cress.

NOTE.—*Melissodes epicharina* Ckll., from Arizona, might run to *dubitata*, but it is quite different by having an entire, conspicuous hair band, creamy in color, on second abdominal segment. Thorax above with much black hair.

M. epicharina var. *a*, has eyes green, and two abdominal bands, the extra one being at base of second segment.

GROUP I.

Pubescense of thorax above not all black, or if so, of pleura not black; abdomen not black without bands, and the apical part not all black.

Abdomen covered with white tomentum; small species.
Xenoglossodes albata (Cress.).
(The only species which could be confused with this is *Melissodes stearnsi* Ckll., which is easily distinguished by the dark tegulæ, ochreous hair of front of thorax, etc.)

Abdomen not so covered..1.

1. Last two segments of abdomen covered with black or dark fuscous hair, except sometimes at extreme sides[1]..2.

Last two segments of abdomen with the hair not, or not all (except extreme sides) black or fuscous..................................GROUP N.

2. Hair of anterior and middle legs black, ferruginous on inner side of tarsi, large species, about 17 mm. long, robust, with hair of scutellum and hind part of mesothorax black............**Melissodes obliqua** Say.

(Compare here the following:

M. coloradensis Cress. has hair of thorax above colored as in *obliqua*, but it is a smaller species, and hair of anterior and middle legs is fulvous.

M. comanche Cress. has hair of thorax above colored like *obliqua*, but hair of segments 5 and 6 is largely brown, and hair of anterior and middle legs is reddish. It has the size of *obliqua*.

M hortivagans Ckll., var. *a*, has hair of anterior and middle legs nearly all black, but is much smaller than *obliqua*)

Not so..3.

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[1] *Florilegus condigna* Cress., *Tetralonia belfragei* (Cress.) and *T. cressoniana* Ckll., might, perhaps, be looked for here, but they show too much white at sides of segment 5. They are placed in the table with this reservation.

3. Hair of thorax above without black..... ....GROUP J.
(In *M. hewetti* Ckll., with very few dark hairs; in *dentiventris* with a small patch of dark hairs on scutellum.)
Hair of thorax above with black (very little in *hewetti* and *dentiventris*).
GROUP L.

GROUP J.

Hair of thorax above without black.

Hair on inner side of basal joint of hind tarsi ferruginous ....1.
Hair on inner side of basal joint of hind tarsi black or dark fuscous..GROUP K.
1. Abdomen with four white clean-cut bands; smaller than *belfragei* (Texas).
Tetralonia cressoniana (Ckll.).
Abdomen with three wide clean-cut white bands on a black ground; sides of fifth segment with white hair ....**T. belfragei** (Cress.).
(*T. lata* (Prov.) is close to this, but with white bands only on segments 3 and 4, segment 2 being all black.)
Abdomen with three wide greyish white or pale grey bands; sides of 5 with a light marginal patch ....**T. cordleyi** Viereck (cf. also *donata*).
Abdomen not so ornamented ....2.
2. Larger and more robust.......... ....3.
Smaller and less robust ....4.
3. Light hair of fourth abdominal segment white.
Melissodes thelypodii Ckll.
Light hair of fourth abdominal segment pale fulvous ....**M. hewetti** Ckll.
4. Anterior middle of scutellum with the shining surface showing, though thinly pubescent, posterior part and sides densely covered with fulvous hair: pale hair on abd. s. 2 and 3 pale ochreous ....5.
Scutellum nearly all hidden by fulvous pubescence; light hair of abdominal segments 2–4 all pale ochreous or pale fulvous.
M. aurigenia Cress.
5. Pale hair of abd. s. 4 pale ochreous, but white on hind margin; flagellum not so dark, and pleura not as in *galvestonensis*.....**M. tepaneca** Cress.
Hair of abd. s. 4 all white; lower part of pleura in front with black hair (Texas).............. ....**M. galvestonensis** Ckll.
(At Fedor, Texas, May 27, 1901, Mr. Birkmann took a form of *M. galvestonensis* having the black hair on lower parts of thorax reduced, and scarcely differing from *tepaneca*. It has the flagellum colored as in *galvestonensis*, and the hair at apex of abdomen (as in type *galvestonensis*) is perfectly black, whereas in *tepaneca* it is strongly suffused with red. The punctures extend over much more of the metathoracic area than in *tepaneca*.)

NOTES.

(1.) *Tetralonia lippiæ* (Ckll.) may be looked for in this group. It has a subspecies *semilippiæ*, concerning which see Proc. Biol. Soc. Wash., xviii, p. 179.

(2.) *Anthedon compta* (Cress.) comes in this series. Thorax with dense short fulvous pubescence; legs with dark fulvous pubescence, black on basal joint of anterior tarsi. The above is from the description of Cresson, which makes no explicit reference to the hind tarsi; but I examined the type, and found that they have the hair red.

(3.) From the description, *Melissodes tepida* Cress., from Nevada, comes in this group. It has the abd. segments 2–4 almost entirely covered with short, dense, pale, appressed, ochraceous pile, and has a patch of pale pubescence on each side of segment 5.

(4.) *Melissodes donata* Cresson (type examined) is from Mexico, and runs to *Tetralonia cordleyi* fairly well in the table; the fifth abd. s. appears black, with the marginal fringe dark chocolate, contrasting, and the hair of apical segment is dark chocolate. Segments 2 to 4 have broad, even marginal bands of light cinereous tomentum; the mesothorax is dullish but very strongly and closely punctured, and it has erect fuscous hair; flagellum a sort of sepia brown beneath. Apparently close to *T. actuosa* (next to which it is placed in the Cresson collection); it differs principally from *actuosa* by the much coarser sculpture of mesothorax, and the smaller size. I have not seen the palpi, but I think the species may be safely written *Tetralonia donata*.

GROUP K.

Hair on inner side of basal joint of hind tarsi black or dark fuscous.

Abdomen shining black, with only one white hair band, which is on fourth segment, but a white spot on each side of third; flagellum all black. **Tetralonia acerba** (Cress.).
Abdomen not thus ornamented; bands two or more, though sometimes weak..1.
1. Eyes green; flagellum fulvous beneath; thorax above with fulvous pubescence; abdominal bands white, as broad as the black intervals between them...**Melissodes (Martinella) luteicornis** Ckll.
Eyes not green, or if greenish, then pubescence of thorax not fulvous......2.
2. Pubescence of thorax above deep fulvous; size moderate; species of E. States. **M. dentiventris** Smith.
Pubescence of thorax above pale ochreous, or greyish; mostly larger, robust species, all of the W. States....................................3.
3. Basal declivity of first abdominal segment with sooty hair; very large and robust species........................**M. chrysothamni** Ckll.
Basal declivity of first abdominal segment without sooty hair; species not so large, though *M. mizeæ* is nearly as large.......................4.
4. Hair on inner side of hind tibiæ black or dark fuscous; middle of mesothorax nude, with sparse but strong punctures; smaller species...........5.
Hair on inner side of hind tibiæ light; larger species....................6.

5. Eyes pale grey-green; pubescence of thorax greyish white.
M. glenwoodensis Ckll.
Eyes brown; pubescence of thorax slightly yellowish; abdominal bands better developed.......“**M. mennacha** Cress.” (a Colorado specimen so labelled in the Cresson collection, but not the species usually recognized as *menuacha*).
6. Abdomen broader, with very broad bands................**M. mizeæ** Ckll.
Abdomen narrower, with narrow bands.............. ....**M. blakei** Ckll.
The two following may also be compared here, but they are smaller species:
Abdomen with broad bands; sides of fifth segment without patches of white tomentum; flagellum red beneath.
Xenoglossodes excurrens Ckll.
Sides of fifth abd. s. with patches of white tomentum; flagellum all black.
Tetralonia lippiæ semilippiæ (Ckll.).

GROUP L.

Last two segments of abdomen with black or fuscous hair, except sometimes at extreme sides; hair of thorax above with black (very little in *hewetti* and *dentiventris*).

Hair on inner side of basal joint of hind tarsi ferruginous... ....1.
Hair on inner side of basal joint of hind tarsi black or fuscous.......GROUP M.
1. Hair of vertex without black; larger species.................... ....2.
Hair of vertex with black, at least at sides ....4.
2. Hair of thorax in front pale yellowish cinereous; eyes green; abdominal bands narrow......................**Melissodes martini** Ckll.
Hair of thorax in front fulvous; eyes brown or greyish brown; abdominal bands broad; tegulæ rufous.................... ....3.
3. Larger; legs red; a light band in scutello-mesothoracic suture; an oblique (pointed anteromesad) hair band at sides of second abd. s., the region below and mesad of the band hairless...........**M. texana** Cress.
Smaller; legs black or nearly; no light band in scutello-mesothoracic suture; second abdominal segment hairy right across, as in *M. suffusa*.
M. petulca Cress.
(*Texana* and *petulca* are very closely allied, but separable as indicated. *M. petulca*, however, is a variety of *suffusa*, separable by the hair of the last two abdominal segments being very dark chocolate; the abdomen perhaps averages narrower. *M. petulca* has priority of place over *suffusa*.)
The following two species will be looked for here:
Tetralonia fuscotincta (Ckll.), from Arizona; hair of vertex with no black; length about 11 mm., abdomen with three broad white bands; a white patch at each side of fifth segment.
Melissodes grandissima Ckll., from Texas; very large species; flagellum dark; hair on inner side of b. j. fuscous, with some ferruginous basally; legs black.
4. Hair of thorax above fulvous, with only a few black hairs; eyes light green; large species....... ....**M. hewetti** Ckll.
Hair of thorax above with much black....... ....5.

5. Hair of thorax in front fulvous; species of West Indies, rather small, abdomen with two fulvous hair bands, and rudiments of a third. **M. trifasciata** Cress.

Hair of thorax in front not fulvous, but pale cinereous, at most with a slight yellowish tint......6.

6. Fifth abdominal segment with a patch of white tomentum on each side; light bands on abdominal segments 2 and 3 basal......7.

Fifth abdominal segment without a patch of white tomentum on each side, though sometimes a tuft of light hairs......8.

7. Species of United States......**Florilegus condigna** (Cress.).

Species of Cuba; much brown-black hair on hind margin of scutellum, but postscutellum with abundant, long, creamy-white hair; tegulæ redder than in *condigna*, and much reddish on abdomen. **Florilegus lanieri** (Guér.).

(Both *condigna* and *lanieri* have metallic tints on the abdomen in ♀, green and crimson. If both occurred in the United States, I should think *condigna* a variety or race of *lanieri*.)

8. Abdomen with only one hair band, this cream color, very well defined, on second segment (Arizona)......**Melissodes epicharina** Ckll.

Not so: more than one band......9.

9. Hair bands of abdomen pale fulvous; size medium......**M. gilensis** Ckll.

Hair bands of abdomen white......10.

10. Larger (but not so large as *gilensis*); hair on outer side of hind tibiæ and tarsi yellowish; apical margins of second and third abd. segments bare; second segment with a median linear white band. **M. communis** Cress.

(*M. hortivagans* Ckll., var. *a*, from Kansas, runs to *communis*, but is more robust, with a much broader abdomen, and more space between the sides of black patch on mesothorax and tegulæ.)

Smaller; hair on outer side of hind tibiæ and tarsi white; quite small species......11.

11. Hind margins of second and third abd. s. covered with pubescence; scopa on hind legs comparatively short; abdomen between the bands very shining......**M. sphæralceæ** Ckll.

Hind margins of second and third abd. s. bare; scopa of hind legs very long. **M. humilior** Ckll.

(*M. pecosella* var. *verbesinarum* Ckll., with hair of b. j. within fuscous, may perhaps be looked for here, but it has the abdominal bands, etc., as in *M. pallidicincta*.)

NOTE.—Somewhere here comes *M. fimbriata* Cress. from the description (I have seen only the male), though Cresson mentions no black hair on vertex. It has nervures black; legs with fulvous pubescence; length slightly over 11 mm. Cresson says allied to *rivalis*.

Group M.

Hair on inner side of basal joint of hind tarsi black or fuscous.

Hair of anterior part of thorax deep fulvous.................................1.
Hair of anterior part of thorax pallid, at most slightly yellowish or pale ochraceous (except sometimes quite fulvous in *M. grindeliæ*) ....2.
1. Largest, length of anterior wing 13 mm.; similar in appearance to *M. comanche*; species of Texas.........**Melissodes grandissima** Ckll.
Larger than *dentiventris*, length of anterior wing about 11 mm.; hair of disc of thorax black; abdomen with two pale fulvous hair bands.
M. coloradensis Cress.
Smaller, length of anterior wing a little over 8 mm.; hair of thorax above nearly all fulvous......................**M. dentiventris** Smith.
2. Head extremely broad; eyes pale bluish grey; tegulæ black; abdomen with three broad white hair bands............**M. pallidicincta** Ckll.
Head ordinary..3.
3. No light hair at sides of fifth abdominal segment..........................4.
Some light hair at extreme sides of fifth abdominal segment..............5.
4. Larger; tegulæ with a tuft of pale hair; eyes blue-grey..**M. mysops** Ckll.
Smaller; tegulæ with a tuft of black hair; eyes light green; hair of labrum black....................................**M. confusa** Cress.
5. Larger..6.
Smaller; abdominal bands white or yellowish white (sometimes pale also in *grindeliæ*, but then size comparatively large.......................7.
6. Abdominal bands fulvous; tegulæ with some black hair; hair of labrum light.
M. grindeliæ Ckll. = **montana** Cress.
(The ♀ *montana* is *grindeliæ*, but not the male.)
Abdominal bands creamy-white; tegulæ without black hair (Arizona).
M. nigrosignata Ckll.
(*M. nigrosignata* varies in color of hair of middle tarsi, which, though typically black, may be largely pale. A more extreme variety, from the same locality, has been named var. *pallidosignata* Ckll. This has segments 2–4 of abdomen practically covered with pale ochreous hair, and hair on outer side of middle tarsi all yellowish white. It is easily known from *grindeliæ* by having the hair on tegulæ all light.)
7. Tegulæ with some very short black hair; hair of middle tarsi black.
M. perplexa Cress.
Tegulæ without black hair..8.
8. Hair of middle tarsi white; scopa of hind legs very long.
M. intermediella Ckll.
Narrower than *intermediella*; abdominal banding like that of *M. pallidicincta*; distinguished from *sphæralceæ* by broader abdominal bands, and hind margin of first segment not hyaline, etc.; abdomen much narrower than in *Xenoglossodes excurrens*...............**M. pecosella** Ckll
Rather more robust than *pecosella*; flagellum bright ferruginous beneath: occuring at lower altitudes than *pecosella*.
M. pecosella verbesinarum Ckll.
Narrow species, looking like *Tetralonia lippiæ*; abdominal bands white (almost bluish white), not creamy as in *pécosella*, etc.; tegulæ light fulvous (Arizona)..........................**M. duplocincta** Ckll.

NOTE.—Allied to *M. mysops* is *M. desponsiformis* Ckll., from Oregon. The following table separates this species from several of its allies.

Cheeks with black or sooty hair.. ....1.

Cheeks with yellowish white or greyish white hair.......... 2

1. Abdomen without hair bands; middle of mesothorax strongly and closely punctured............................ ....**cnici** Rob

Abdomen with pale hair bands on segments 3 and 4, and a line on each side of 2; middle of mesothorax shining and rather sparsely punctured. **desponsiformis** Ckll.

2. Dorsum of thorax with a good deal of black hair; inner orbits parallel. **mysops** Ckll.

Dorsum of thorax without black hair; inner orbits diverging above. **glenwoodensis** Ckll.

GROUP N.

Last two segments of abdomen with the hair not, or not all (excluding extreme sides) black or fuscous.

Thorax above with some black hair ....1.

Thorax above without black hair........... .... GROUP O.

1 Small species; abdomen beyond first segment covered with fulvous tomentum. **Melissodes pinguis** Cress.

Rather large; abdomen beyond middle of second segment covered with orange-fulvous hair......... ....**Xenoglossa exquisita** (Cress.).

Not like either of the above...2.

2. Fifth abdominal segment with black hair, the sides with patches of white tomentum ....**Florilegus condigna** (Cress.).

(Compare here also *Tetralonia donata* (Cress.), which has the fifth abdominal segment with black hair, but apical margin narrowly fuscous; a small species of Mexico, not quite 9 mm. long.)

Larger: fifth abdominal segment with brown or purplish brown hair, and no lateral patches of white tomentum 3

3 Mesothorax with hardly any black hair; tegulæ light apricot color; very large species; eyes light green; fourth abdominal segment without a diamond shaped (or any) nude area ....**M. helianthelli** Ckll.

Mesothorax with much black hair: tegulæ darker.......... ... . 4.

4. Smaller; eyes strongly yellowish (or may be yellowish grey); flagellum darker; abdomen more pubescent, segments 2 and 3 with very broad, entire, ochreous hair bands, covering apical margins. **M. suffusa** Cress

Larger; eyes plumbeous; flagellum clear red beneath, except the two basal joints; abdomen less pubescent, fourth segment with a diamond shaped nude area; segments 2 and 3 with oblique lateral stripes of hair, the apical margins bare... ....**M. comanche** Cress.

NOTE.—*M. suffusa* has a good deal of superficial resemblance to *Tetralonia frater aragalli*, but it is a true *Melissodes*, as shown by the maxillary palpi. Characteristic of *suffusa* is the white hair covering whole of face, contrasting with the fulvous of occiput and mesothorax. The tegulæ are a warm red.

By the description, *M. intermedia* Cress. comes in this group: Cresson says it may be the ♀ of *honesta*. I searched for the type in the collections at Washington and Philadelphia, but without success. It is a little over 11 mm. long, venter with brown pubescence, whitish at extreme sides; labrum covered with dense ochraceous hairs. It can be distinguished from *suffusa* thus:

Clypeus almost nude; abdominal segments 2 to 4 with narrow apical bands of white pubescence .... **intermedia** Cress
Clypeus covered with hair; larger (length about 13 mm.); abdominal segments 2 to 4 with extremely broad apical bands of ochreous pubescence.
suffusa Cress.

GROUP O.

Thorax above without black hair; last two segments of abdomen with the hair not black.

Entirely dull red, legs brighter; about 14 mm. long; mandibles bidentate at tip (Utah)........................**Xenoglossa utahensis** Ckll.
Not so...... ....1.
1. Large species.............. ....2.
Rather small species ....3.
2. Abdomen with broad white bands on segments 3 and 4, that on 2 much reduced; scape and legs red.
Melissodes machæranthera Ckll.
Abdomen with three broad grey bands; maxillary palpi 6-jointed; hind spur of hind leg not hooked..........**Tetralonia speciosa** (Cress.).
Much like *speciosa*, but a little smaller, and hind spur hooked at end.
T. dilecta (Cress.).
Much like *dilecta*, but hind spur not hooked, and hair at apex of abdomen differently colored ... .**T. cordleyi** Viereck.
(Compare also *T. lata* (Prov.), which has bands on segments 3 and 4, but none on 2; segment 5 black, with a white patch on each side.)
3. Flagellum dark, with only the faintest brown tint; mesothorax dull and granular.. ....**Tetralonia actuosa** (Cress.).
(I examined the maxillary palpi of the type of *actuosa*, and found them 6-jointed. Compare here also *T. donata*.)
Flagellum ferruginous beneath ... .4.
4. Larger; mesothorax densely pubescent; tegument of abdomen stained with red... ....**Melissodes spissa** Cress.
Smaller; mesothorax bare, except in front, shining and punctured; third and fourth abdominal segments covered with whitish tomentum.
M. stearnsi Ckll.

NOTES.

(1.) The type of *M. spissa* has the hair of thorax yellow-ochreous. A variety (Texas; Cresson collection) has this pubescence bright orange fulvous, and the abdominal hair bands fulvous. Characters of *spissa* are the closely punctured abdomen, facial quadrangle square, anterior edge of clypeus reddish, and tegulæ red.

(2.) *Melissodes herricki* Ckll. is to be compared with the larger species of this group. It is large, covered with fulvous tomentum white on cheeks, pleura and venter). Superficially it looks just like *M. townsendi.*

(3.) *Tetralonia stretchii* (Cress.) is also to be compared with the larger species. The type shows the following characters: length about 13½ mm.; flagellum thick, black, with only a faint reddish tint at tip; abdomen with dense white tomentum at extreme bases of segments 3 and 4; hair at sides of apical plate bright shining orange fulvous; mesothorax dull, only faintly shining on middle of disc; hair of thorax above long and erect, greyish white; clypeus densely punctured all over, with no keel or median line; no dark hair on fifth abd. s.; scopa on outer side of hind legs white, with a faint creamy tint. I have not seen the palpi of this species, but I assume it to be a *Tetralonia* because of its manifest affinity with *T. idiotes* Ckll., which, however, is larger (about 15 mm. long), and has the fifth abd. segment covered with reddish hair, and having a suffused median dark brown band. I am disposed to believe that *idiotes* will prove to be only a race of *stretchii.*

(4.) *Tetralonia cressoniana* Ckll., from Texas, may be compared with the smaller species of this group. It has the mesothorax densely pubescent; abdomen with four white bands; apical hair of abdomen very dark chocolate, almost black, except at sides of segment 5, where it is white.

(5.) *Melissodes suavis* Cress., according to the description, falls in this group, among the smaller species. Cresson says that the abdomen appears white, with four narrow shining black bands, these bands being the apical margins of the segments. Apex with fulvous pubescence.

(6.) *M. pygmæa* Cress., by the description, falls in this group; it is a small species, about 7½ mm. long. Flagellum "brown-testaceous" beneath; abdomen with segments 1 and 2 smooth and polished, the rest at base with a very dense brown sericeous pubescence, and at apex with broad band of very short, dense, whitish pubescence.

MELISSODES Latr.

The following are new records:

M. petulca Cress. Fedor, Texas, May 31st and June 17th (*Birkmann*).

M. petulca suffusa (Cress.). Fedor, Texas, May 12th (*Birkmann*); Flagstaff, Arizona, August, 1902 (*Snow*, 441).

M. grindeliæ Ckll. ♂. Oak Creek Canon, Arizona, 6000 feet; not quite typical, third submarginal cell narrower above, and more black hair on thorax than usual (*Snow*), also five females from same locality (*Snow*).

M. gilensis Ckll. ♂. Arizona (*Snow*); Colorado (Cresson collection); ♀, Magdalena Mountains, New Mexico (*Snow*, 1052).

M. tristis Ckll. ♂. Oak Creek Canon, Arizona (*Snow*); Magdalena Mountains, N. M. (*Snow*).

M. montana Cress. ♂. Oak Creek Canon, Arizona (*Snow*).

M. pallidicincta Ckll. ♀. Bill William's Fork, Arizona (*Snow*, 1005); Oak Creek Canon, Arizona, 6000 feet (*Snow*); Boulder, Colorado, ♀, at flowers of *Opuntia*, July 5th (W. P. Cockerell); Magdalena Mountains, New Mexico (*Snow*, 1190); Clark County, Kansas, 1962 feet (*Snow*, 1187).

M. intermediella Ckll. ♀, var. with broader bands, like the So. California form, Arizona (*Snow*).

M. aurigenia Cress. Oak Creek Canon, Arizona, both sexes (*Snow*); Sterling, Colorado (*S. A. Johnson*); Durango, Colorado (Gillette); Greeley, Colorado (*S. A. Johnson*); Fort Collins, Colorado (Colo. Agric. College).

M. menuacha Cress. Denver, Colorado (*S. A. Johnson*).

M. communis Cress. ♀. Tegulæ fulvous, and band on third abd. s. more or less divided into two, but real *communis*, nevertheless. Bill William's Fork, Arizona (*Snow*, 1004).

M. agilis subagilis Ckll. 7 males, Oak Creek Canon, Arizona (*Snow*).

M. confusa Cress. ♂. Colorado (*Snow*, 856).

It has been held that *Melissoda* Lepel., 1841, is a homonym of *Melissodes*. I cannot agree to this, and in my opinion Lepeletier's name should be restored, if the genus is considered distinct from *Acanthopus* Klug, and if it is certain that it has priority over *Ctenioschelus*, Romand, published in the same year. Smith, however, cites as a synonym *Ischnocera* Shuck, 1840 (not *Ischnocerus* Grav., 1829), but I suppose in error, as Dalla Torre gives no reference to it.

The occurrence of *M. suffusa*, and especially of *M. communis*, in Arizona was quite unexpected.

I omitted to state, in my original account of *Melissodes martini*, that it visits the flowers of *Petalostemon oligophyllus*.

TETRALONIA Spinola (*Synhalonia* Patton).

Tetralonia fedoris n. sp (*rosæ* var. ?).—♂. Length 11 mm. or slightly more; antennæ about 10 mm.; black, the abundant pubescence of thorax light yellowish ochreous, without any black; hair of cheeks long and white; of legs dull white, most of that on outside of middle and hind tibiæ and hind tarsi with a strong sooty stain; hair on inner side of basal joint of hind tarsi reddish chocolate color; hind spurs normal; clypeus strongly punctured, entirely lemon-yellow; labrum yellowish white, with very pale reddish hair; mandibles with a small yellow spot; antennæ entirely black; mesothorax strongly punctured, the middle feebly shining; tegulæ testaceous; wings suffused with reddish; second submarginal cell broad, receiving the first recurrent nervure a little before the beginning of the last fourth; abdomen very shiny, punctured, the sides of segments 2 to 4 with short greyish white tomentum, the same forming a continuous band on the fifth segment; sixth with a heavy fringe of dark fuscous hair; sides of apex with a rudimentary tooth, short, low and broad.

Hab.—Fedor, Texas, May 5, 1901 (*Birkmann*). In Robertson's table this runs to *T. rosæ* Rob., of which it may be a variety or race; but I have never seen *T. rosæ*, and Robertson's account makes no reference to the more striking characters of the present insect. It is quite similar in general appearance to *T. frater* Cress., but is readily known from that by the shorter (about half as long) third antennal joint, yellower hair of thorax, spot on mandibles, broader apical plate of abdomen, dark hair of sixth abdominal segment and sooty hair on hind tibiæ, etc. From *T. truttæ* Ckll. it differs at once by the strongly punctured, rather shiny mesothorax.

Tetralonia birkmanniella n. sp.—♂. Length about 11 mm.; black, hair of thorax dull white, with an ochreous tinge above; clypeus pale lemon-yellow, the yellow rectangularly notched at the sides; labrum yellowish white, with white hair; mandibles with no yellow spot; antennæ entirely black, third joint conspicuously longer than broad; scape short and thick; mesothorax strongly punctured, the middle shining; tegulæ testaceous; abdomen with greyish white tomentum, forming distinct bands; fringe of sixth segment white; hair of legs white, that on inner side of basal joint of middle and hind tarsi orange-ferruginous; middle and hind tarsi slender and rather long; hind spurs normal.

Hab.—Fedor, Texas, April 1, 1898 (*Birkmann*).

Another hymenopterist had labelled this *T. lepida* Cress., but it differs conspicuously from one of Cresson's cotypes of *lepida*, though of the same general aspect. It differs from *lepida* by the much broader face and smaller and less prominent eyes, and in the broader, truncate apical plate of the abdomen, which is conspicuously notched on each side subapically. In *lepida* the apical part (nearly half) of the basal joint of middle tarsus is ferruginous and somewhat constricted, but in *birkmanniella* the whole joint is black and normal though slender.

The following table will facilitate the separation of the above two species from their allies:

Third antennal joint very short, broader than long seen from in front; clypeus entirely yellow; mandibles with a small yellow spot; abdomen very shiny.......... **fedoris** Ckll.
Third antennal joint longer than broad, seen from in front; abdomen less shiny.......... 1.
1. Abdomen very distinctly banded.......... 2.
Abdomen not very distinctly banded, or not banded.......... 3.
2. Face very narrow, conspicuously narrower than the combined width of the eyes, as seen from in front.......... **lepida** (Cress.).
Face broader than combined width of eyes.......... **birkmanniella** Ckll.
3. Mesothorax shiny and conspicuously punctured; mandibles with a minute yellow spot.......... **gillettei snoviana** Ckll.
Mesothorax dull; mandibles with no yellow spot.......... 4.
4. Last ventral segment with two conspicuous longitudinal keels; size smaller. **territella** Ckll.
Last ventral segment without such keels; size larger; narrow upper edge of clypeus black.......... 5.
5. Abdominal segments 4-6 with much light hair; third antennal joint short. **frater** (Cress.).
Abdominal segments 4-6 with black hair; third antennal joint longer. **truttæ** Ckll.

Tetralonia dilecta (Cresson).

Barela Mesa, New Mexico (*Anna Gohrmann*); Baldwin, Kansas (*Bridwell*); Illinois (*Robertson*); Fort Collins, Colorado (*Colorado Agr. College*); Boulder, Colorado, at flowers of *Aragallus*, June 10, 1905, ♀ (*W. P. Cockerell*). This unfortunate species has been repeatedly confused with *T. frater* and *T. speciosa*, but it is easily known by the hooked spurs. It is the *T. speciosa* of Robertson's table in Trans. Am. Ent. Soc., xxxi, 366–367, and of my description in Entomologist, June, 1905, p. 148. *T. frater aragalli* Ckll., which is very similar in appearance, has the spurs of hind leg quite simple. The following table will be useful for the separation of several females having the general appearance of *dilecta:*

Fourth abdominal segment covered with black tomentum .... **lycii** Ckll.
Fourth abdominal segment with a very broad light band, the black confined to the base ....1.
1. Apical fringe of fifth abd. s. black, except at extreme sides. **cordleyi** Viereck.
(*Cordleyi* goes south to California, as shown by a specimen in the Cresson collection.)
Apical fringe of fifth abd. s. pale or ferruginous..................................2.
2. Hind spur of hind tibia hooked at end ....**dilecta** (Cress.).
Hind spur of hind tibia not hooked...3.
3. Larger, length of anterior wing 12 mm.; bands of abdominal segments 2 to 4 greyish white.......................................**speciosa** (Cress.).
Smaller, length of anterior wing 9 mm.; bands of abdominal segments 2 to 4 pale ochreous.....................................**frater aragalli** Ckll.

Tetralonia edwardsii vagabunda n. subsp. ♂.

Hab.—Boulder, Colorado, June 4, 1905, at flowers of *Onosmodium*, 5 ♂ (*W. P. Cockerell*). Hair of thorax above whitish; basal half of second abdominal segment with light hair; fifth segment with a light band. Superficially much like *T. fedoris*, but easily distinguished by the entirely different sculpture of mesothorax. The characters of this form are best set forth by means of a table of forms with a dull mesothorax:

Smaller; venter with a pair of conspicuous subapical keel-like teeth. **territella** Ckll.
Larger; venter without such teeth...1.
1. Apical segments of abdomen with much pale hair, sixth with a heavy dull white fringe; yellow of clypeus notched at sides; last ventral segment with a large round basal pit at each extreme side, and a curved line or groove along lateral margins ....**frater** (Cress.).
Apical segments of abdomen with much black hair, the pale hair when present reduced to narrow bands...2.
2. Face broader, yellow of clypeus not approaching orbital margin (style of *T. atriventris*); second s. m. larger, receiving first r. n. some distance from end; apical segments of abdomen without noticeable light bands; yellow of clypeus concave at sides, but not abruptly notched; last ventral segment rough basally, with short black bristles; laterally (but not basally) the segment has a pit or depression, the inner edge of which is somewhat raised, representing apparently a rudiment of such a tooth as is found in *territella*; submarginal area caudo-mesad of the pit (nearly at right angles with it) broad and punctured, its end ill defined...**truttæ** Ckll.
Face narrower, yellow of clypeus closely approaching orbital margin (style of *acerba* and *edwardsii*); second s. m. smaller, receiving the first r. n. almost at its end; yellow of clypeus abruptly (rectangularly notched at sides; last ventral segment similar to that of *truttæ* in most respects,

but the roughened base is reduced and the pit and marginal area run somewhat together, the end of the latter (mesad) being well defined, and pointed. Fifth abdominal segment with an entire narrow light hair band, sixth with a heavy dark chocolate colored fringe.
edwardsii vagabunda Ckll.

In Bull. So. Cal. Acad. Sci., February, 1905, p. 31, I describe a variety of *T. angustior* (Ckll.), having pale hair bands on segments 4 and 5 of abdomen. This insect, from Los Angeles, California, is exactly *vagabunda*, except that it has the fulvous thoracic pubescence of true *edwardsii*.

I have before me a male labelled *edwardsii* type, one of Cresson's original specimens. It has the hair of thorax above light fulvous; last ventral segment much as in *vagabunda*, the marginal area united with the pit, and sharply pointed and well defined mesad; second submarginal cell conspicuously broader than high, which is not the case in *vagabunda*. This male, however, has the hair of the apical segments of the abdomen all black, and *only black hair on the second segment*. It is, in fact, the insect which passes as male *T. acerba*.

The description of *T. edwardsii* refers to pale hair on the second segment, and so it is evident that the original series (of six) contained two species, and there is no occasion to unite *edwardsii* with *acerba*. The true *edwardsii* must be identified with the form which I named *angustior*, though the description indicates that the series may also have included *vagabunda*. ("Sometimes the fourth and fifth segments have each a narrow, indistinct, subapical fascia of white pubescence.")

In Proc. Acad. Nat. Sci. Phila., 1897, I recognized two races of *T. edwardsii*, which I named *latior* and *angustior*. Prof. Kincaid collected them in large series in Washington State, and found only *latior* at Olympia and Seattle, near the coast, and only *angustior* at Pasco, inland. Mr. Viereck's account of the distribution in Canad. Ent., 1905, p. 315, is misleading, but he has ascertained that both forms occur at Corvallis, Oregon. Some time ago I became convinced that these two supposed races were quite distinct species, and thinking that *latior* was the real *edwardsii*, proposed *angustior* as a valid species. Since it appears that *angustior* is *edwardsii*, it is *latior* that must be raised to specific rank; but it has an earlier name given by Provancher (as *Melissodes*), and will stand as *Tetralonia lata* (Prov.).

Tetralonia crenulaticornis (Ckll.).

Manitou Park, Colorado (*Snow*, 858). New to Colorado.

Tetralonia lippiæ (Ckll.).

Arizona (*Snow*, 466).

Tetralonia fulvitarsis (Cress.).

Fort Collins, Colo., May 12, 1901 (*Col. Agr. College*).

CHECK-LIST OF NORTH AMERICAN ANTHOPHORIDÆ.

(V. C. = State of Vera Cruz, Mexico; Chih. = State of Chihuahua, Mexico; L. Cal. = Lower California, Mexico.)

Subf. CENTRINÆ.

Centris Fabr.

Subg. PTILOTOPUS Klug.

1. **æthiops** Cress., Cuba.
2. **armillata** Cress., Cuba.
   (? ♂ of *æthiops.*)
3. **aterrima** Smith, Mexico.
4. **atripes** Mocs., Mexico, Texas.
5. **atriventris rubripes** Friese, Panama.
6. **birkmanni** Friese, Lee Co., Tex.
7. **cæsalpiniæ** Ckll., New Mexico (fls. *Hoffmanseggia*).
8. **clypeata** Friese, Mexico, Guatemala.
9. **cockerelli** Fox, New Mexico, California (fls. *Hoffmanseggia*).
10. **domingensis** D. T., S. Domingo.
    thoracica *Smith.*
11. **foxi** Friese, Texas.
    atriventris *Fox.*
12. **hoffmanseggia** Ckll., New Mex. (fls. *Hoffmanseggia*).

12*a* **davidsoni** Ckll., So. Calif.

13. **lanosa** Cress., Texas, L. Cal., Sonora.
14. **limbata** Friese, Fedor, Tex.
15. **lutea** Friese. Mexico.
16. **marginata** Fox, New Mex. (fls. *Cevallia*).
17. **melanochlæna** Smith, Mexico.
    nobilis *Friese.*
18. **mexicana** Smith, Mexico.

18*a* **albiceps** Friese, Mexico.

19. **mocsaryi** Friese, Mexico.
20. **morsei** Ckll., New Mex., Texas
21. **nitida** Smith, Honduras.
22. **otomita** Cress., Mexico.
23. **pallida** Fox, Phoenix, Ariz. (fls *Parkinsonia*).
24. **rhodopus** Ckll., New Mex. (fls. *Hoffmanseggia* and *Prosopis*)

24*a* **pulchrior** Ckll., New Mexico.

25. **sericea** Friese, Mexico.
26. **subhyalina** Fox, Texas.
    (? ♀ of *lanosa.*)
27. **xylocopoides** Fox, Trinidad, Grenada.
28. **zonata** Mocs., Panama.
    pandora *Friese.*

Subg. HETEROCENTRIS Ckll.

29. **difformis** Smith, Mexico.
    cornuta *Cress.*, Cuba.
30. **labrosa** Friese, Honduras, Guatamala.

Subg. TRACHINA Klug.

31. **agilis** Smith, Mexico.

31*a* **abdominalis** Friese, V. C.

32. **ignita** Smith, Orizaba, Mex.
33. **inermis** Frieze, Orizaba, Mexico.
34. **lanipes** Fabr. (fls. *Stachytarpha*).
    dentipes *Smith*, Mex., W. Indies.
    fulviventris Cress., Mex., Cuba.
35. **montezuma** Cress., Mexico.

36. **proxima** Friese, Costa Rica (Crawford, litt.).
37. **simillima** Smith, S. Domingo.
38. **testacea** Lep., S. Domingo.
39. **totonaca** Cress., Mexico.

Subg. HEMISIA Klug.

40. **citrotæniata** Griboda, Panama.
41. **crassipes** Smith, Jamaica.
42. **decolorata** Lep., Mexico, S. Domingo.
    obscuriventris *Friese*.
43. **elegans** Smith, St. Vincent.
    gracilis *Friese*.
44. **flavifrons** Fabr., Mexico.
44*a* **rufescens** Friese, Panama.
44*b* **flavofasciata** Friese, Mexico.
45. **hæmorrhoidalis** Fabr., San Domingo, Jamaica.
46. **insularis** Smith, S. Domingo.
47. **maculifrons** Smith, Mexico.
48. **nigrocœrulea** Smith, Mexico.
49. **pœcila** Lep., Cuba, Mex., Panama.
50. **smithii** Cress., S. Bartholemew.
    apicalis *Smith*.
51. **versicolor** Fabr., Mex., Jamaica (fls. *Crotalaria*).
    errans *Fox*, Florida.
51*a* **apicalis** Guér., Cuba.

Subg. PŒCILOCENTRIS Friese.

52. **fasciata** Smith, Jamaica.
    fasciatella *Friese*.
53. **eisenii** Fox, Guaymas, Mex.

Epicharis Klug.

54. **bicolor** Smith, Mexico.
    flaviventris *Friese*.
55. **elegans** Smith, Mexico.
56. **lateralis** Smith, Trinidad.
57. **lunulata** Mocs., Mexico.
58. **monozona** Mocs., Mexico.

Subg. EPICHAROIDES Rads.

59. **maculata** Smith, Mexico.
    variabilis *Friese*.
    albofasciata *Smith*.
    bipunctata *Rads*.

Tetrapedia Klug.

60. **abdominalis** Cress., Mexico.
61. **antennata** Friese, Mexico.
62. **apicalis** Cress., Orizaba, Mex.
63. **atripes** Smith, Mexico.
64. **calcarata** Cress., Mex.
65. **fratera** Cress., Mex.
66. **lugubris** Cress., Mex.
67. **maura** Cress., Mex., Guatemala.
68. **mexicana** (Rads.).
    saussurei *Friese*, Orizaba, Mex.
68*a* **grisescens** Friese, Mexico.
68*b* **fusciventris** Friese, Mex.
69. **mœsta** Cress., Mex., Guatemala.
    (? ♂ of *atripes*.)
70. **terminalis** Cress., Mex.

Exomalopsis Spinola.

71. **fulvescens** Smith, Oaxaca and Orizaba, Mex.
72. **globosa** (Fabr.), Porto Rico, S. Thomas.
    obliqua *Friese*.
73. **limata** Cress., Orizaba, Mex.
74. **mellipes** Cress., Mex. (fls. *Cordia*).
75. **mexicana** Cress., Mex.
76. **otomita** Cress., Orizaba and Cordova, Mex.
77. **penelope** Ckll., V. C. (fls. *Cordia*).
78. **pubescens** Cress., Cuba; var. in Jamaica.
79. **pulchella** Cress., Cuba, Hayti, Porto Rico, Jamaica, L. Cal.
80. **rufitarsis** Smith, Jamaica.
81. **similis** Cress., Cuba, Costa Rico (Crawford litt.).
82. **solani** Ckll., New Mex. (fls. *Solanum*, *Flareria*, etc.).
83. **solidaginis** Ckll., New Mex. (fls. *Solidago* and *Lippia*).
84. **tepaneca** Cress., Mexico.
85. **verbesinæ** Ckll., New Mex. (fls. *Verbesina*).

Anthophorula Ckll.

86. **bruneri** (Crawf.), Nebraska (fls. *Helianthus*).
87. **compactula** Ckll., New Mexico (fls. *Dithyræa* and *Phacelia*).

88. **coquilletti** (Ashm.), Calif.
89. **serrata** (Friese), Orizaba, Mex.
90. **sidæ** (Ckll.), New Mex. (fls. *Sida*).
91. **texana** (Friese), Fedor, Texas.

Subf. ANTHOPHORINÆ.

Tribe ENTECHNIINI.

Entechnia Patton.

92. **fulvifrons** (Smith), Texas, Mex.
marginella *Cress.*
ipomœæ *Schrottky* (fls. *Ipomœa*).
93. **grisella** Ckll. and Porter, New Mex., Colo., Dakota, Neb. (fls. *Ipomœa leptophylla*, fide Crawford, litt.).
dakotensis *Ckll. and Porter.*
94. **taurea** (Say), Ills., Ga., etc. (fls. *Convolvulus*).
95. **toluca** (Cress.), Mex., L. Cal.

Tribe ANTHOPHORINI.

Anthophora Latr.

96. **abrupta** Say, E. States.
sponsa *Smith.*
97. **abruptella** Ckll., So. Calif.
98. **affibilis** Cress, Texas, New Mex. (fls. *Astragalus*, *Lycium*).
99. **atrata** Cress., Cuba.
100. **badia** Dours, Mexico.
101. **bidentata** (Prov.), Canada.
nudata *Prov.*
102. **bomboides** Kirby, Canada, N. States.
102*a* **canadensis** Cress., Ontario.
102*b* **neomexicana** Ckll., N. Mex., Colo. (fls. *Lycium*, etc.).
103. **californica** Cress., Calif.
104. **capistrata** Cress., Texas, L. Cal.
105. **catalinæ** Ckll., Catalina I.
106. **centriformis** Cress., Nevada.
106*a* **vierecki** Ckll., New Mex.
107. **citreostrigata** Dours, "N. Am."
108. **crotchii** Cress., Calif., Wash.
109. **edwardsii** Cress., Calif., Nevada.
110. **fedorica** Ckll., Texas.
111. **frontata** Say, Louisiana.
112. **fuscipennis** Smith.
113. **godofredi** Sichel MS. Dours, St. Vincent.
114. **gohrmannæ** Ckll., New Mex., Colo., So. Cal. (fls. *Ribes*).
115. **hilaris** Smith, S. Domingo.
116. **histrio** Dours, Mexico.
117. **ignava** Cress., Calif., Ore., Nev. (? ♀ of *pacifica*.)
118. **infernalis** D. T., Nev.
carbonaria *Cress.*
corvicolor Ckll., So. Calif.
119. **krugii** Cress., Porto Rico.
120. **lesquerellæ** Ckll., New Mexico (fls. *Lycium*, etc.).
121. **luteodimidiata** Dours, Mex.
122. **marginata** Smith, Orizaba, Mex.
cleomis *Ckll.*, New Mexico (fls. *Peritoma*).
123. **mexicana** Dours, Mex.
124. **montana** Cress., New Mex., Colo. (fls. *Salvia*, etc.).
125. **occidentalis** Cress., New Mex., Colo., Tex. (fls. *Carduus*, *Peritoma*, *Convolvulus*, etc.).
126. **pacifica** Cress., Nevada, Calif.
127. **pernigra** Cress., Nevada.
128. **pluto** Dours, Mex.
129. **porteræ** Ckll., New Mex., Colo., Calif. (fls. *Ribes*).
129*a* **semiflava** Ckll., Colo.
130. **pulsella** Dours, Mex.
131. **pygmæa** Dours, Mex.
132. **pyralitarsis** Dours, New York.
133. **quinquefasciata** Prov., S. Calif.
134 **rufozonata** Dours, Mex.
135. **simillima** Cress., Col., Nev., New Mex. (fls. *Ribes*).
enops *Ckll.*
136. **smithii** Cress., New Mex., Colo., Tex., Dak.
136*a* **cardui** Ckll., New Mex., Colo. (fls. *Carduus*).
137. **sodalis** Cress., Nevada.
138. **solitaria** Ritsema, Vancouver I.
insularis *Smith.*
139. **squammulosa** Sichel MS. Dours, Mex.
140. **stanfordiana** Ckll., Calif.
141. **subglobulosa** Prov., Canada.

142. **tarsata** Sichel MS. Dours, Mex.
doursii *D. T.*
142*a* **subtarsata** Ckll., So. Cal.
143. **texana** Cress., Texas, New Mex., Ariz. (fls. *Hoffmannseggia*).
144. **tricolor** Lep., Hayti, Guadaloupe.
145. **unistrigata** Dours, Mex.
146. **urbana** Cress., Colo., Utah, Nev., Calif.
146*a* **alamosana** Ckll. New Mexico (fls. *Lycium*, etc.).
147. **ursina** Cress., E. States.
148. **volucellæformis** Dours, Mex.
149. **walshii** Cress., Illinois, Tex. (fls. *Cassia*).
150. **washingtoni** Ckll., Pasco, Wash.

Subg. MICRANTHOPHORA Ckll.

151. **albata** Cress., Colo.
152. **anstrutheri** Ckll., So. Cal.
153. **arthuri** Ckll., Colo.
154. **curta** Prov., Calif., New Mex., Colo.
154*a* **peritomæ** Ckll., Colo., N. Mex. (fls. *Peritoma*, *Isocoma*, *Solidago*).
155. **exigua** Cress., Nevada.
156. **flavocincta** Huard, So. Cal.
nigrocincta *Prov.*
157. **flexipes** Cress., Nev. So. Calif.
158. **maculifrons** Cress., Nevada.
159. **phenax** Ckll., New Mex.
160. **petrophila** Ckll., So. Calif.

Anthophoroides T. & W. Ckll.

161. **vallorum** (Ckll.), New Mexico, Chih. (fls. *Solanum*, *Ipomœa*, etc.).

Clisodon Patton.

162. **syringæ** (Ckll.), Wash. (fls. *Syringa*).
163. **terminalis** (Cress.), New Mex. to Maine (fls. *Polemonium*).
nubiterræ *Vier.*

Emphoropsis Ashmead.

164. **agilis** (Smith), Oaxaca, Mex.
165. **aurulentocaudata** (Dours), Mex.
166. **birkmanni** Ckll., Fedor, Tex.
167. **bombyformis** (Smith), Oaxaca, Mex.
bremiformis *D. T.*
168. **cineraria** (Smith), Vancouver I.
169. **depressa** (Fowler), Calif. (fls. *Quercus*, *Cytisus*).
170. **floridana** (Smith), E. States.
170*a* **fedorensis** Ckll., Fedor, Tex.
171. **fulva** (Smith), Guatemala.
172. **interspersa** Ckll., Calif.
173. **johnsoni** (Ckll.), Colo. (fls. *Delphinium*).
174. **melanopyrrha** (Dours), Mex.
175. **miserabilis** (Cress.), Nev., Calif (fls. *Phacelia*).
176. **montezumia** (Smith), Oaxaca, Mex.
177. **morrisoni** (Cress.), Colo.
178. **mucida** (Cress.), Colo.
(? ♀ of *morrisoni*.)
cressonii *D. T.*
179. **murihirta** Ckll., So. Calif.
180. **pascoensis** (Ckll.), Pasco, Wash.
181. **rugosissima** Ckll., Nevada.
182. **salviarum** (Ckll.), New Mexico, Ariz. (fls. *Salvia*).
183. **semifulva** Ckll., Calif.
184. **terminata** (Smith), Oaxaca, Mex.
habropodoides *D. T.*
185. **tristissima** (Ckll.), So. Calif.

Emphor Patton.

186. **bombiformis** (Cress.), E. States (fls. *Hibiscus*, *Ipomœa*).

Dasiapis Ckll.

187. **ochracea** Ckll., New Mex., Ariz. (fls. *Sphæralcea*).
188. **olivacea** (Cress.), Mex., Calif.

Diadasia Patton.

189. **afflicta** (Cress.), Texas.
tricincta *Prov.*, Calif.
189*a* **perafflicta** Ckll., Kansas.
190. **albovestita** Prov., Calif.
191. **australis** (Cress.), Colorado, New Mexico (fls. *Opuntia*).

191*a* **opuntiæ** (Ckll.), So. Calif. fls. *Opuntia*.
191*b* **rinconis** (Ckll.), N. Mex., Tex., California (fls. *Chilopsis*, *Opuntia*, etc.).
192 **bituberculata** (Cress.), Calif.
cinerea *Fowler*.
193. **diminuta** (Cress.), Calif., Ariz., N. Mex., etc. (fls. *Sphæralcea*).
apacha *Cress.*
194. **enavata** (Cress.), W. States (fls. *Helianthus*).
ursina *Cress.*
arctos *D. T.*
194*a* **densa** Cress., Tex., Colo.
195. **friesei** Ckll., So. Calif.
196. **laticauda** Ckll., Calif.
197. **megamorpha** Ckll., N. Mexico, fls. *Sphæralcea*.)
198. **nigrifrons** (Cress.), Calif.
nerea *Fowler*.
199. **nitidifrons** Ckll., Calif.
200. **sphæralcearum** Ckll., N. Mex. (fls. *Sphæralcea*).
201. **sumichrasti** (Cress.), Mexico.

Subf. EUCERINÆ.

Tetralonia Spinola.

202. **acerba** (Cress.), Nevada, Calif. (fls. *Ranunculus*, *Brassica*).
203. **actuosa** (Cress.), Calif., Oregon.
204. **albicans** (Prov.), Calif.
205. **albopilosa** (Fowler), Calif. (fls. *Ranunculus*).
206. **astragalina** (Ckll.), Colo. (fls. *Astragalus*).
207. **atriventris** (Smith), E. States.
dubitata *Cress.* ♀ (not ♂).
208. **belfragei** (Cress.), Tex., Ills. (fls. *Polemonium*).
honesta *Cress.* (fide Rob.).
209. **birkmanniella** Ckll., Texas.
210. **californica** (Cress.), Calif.
211. **cordleyi** (Viereck), Oregon.
212. **crenulaticornis** (Ckll.), N. Mex., Colo. (fls. *Geranium*).
212*a* **maculata** (Ckll.), New Mexico (fls. *Vicia*).
213. **cressoniana** (Ckll.), Texas.
214. **dilecta** (Cress.), Ills to New Mex. (fls. *Phlox*, *Aragallus*, etc.).
215. **donata** (Cress.), Mexico.
216. **edwardsii** (Cress.), Nev., Calif., Wash., Oregon fls. *Ranunculus*, etc.).
angustior *Ckll.*
216*a* **vagabunda** Ckll., Colo. fls. (*Onosmodium*).
217. **fedoris** Ckll., Texas.
218. **flagellicornis** Smith, Oaxaca, Mex.
219. **fowleri** (Ckll.), Calif., Oreg.
californica *Fowler*.
220. **frater** (Cress.), Colo.
220*a* **aragalli** (Ckll.), Colo. (fls. *Aragallus*).
221. **fulvitarsis** (Cress.), Colo., Wyo.
222. **fulvohirta** (Cress.), Georgia.
223. **fuscotincta** (Ckll.), Arizona.
224. **gillettei** (Ckll.), Colo.
224*a* **snoviana** (Ckll.), Kansas.
225. **hirsutior** (Ckll.), So. Calif.
226. **idiotes** (Ckll.), So. Calif.
227. **illinoensis** (Rob.), Ills.
? fuscipes *Rob.*
228. **intrudens** (Cress.), Nevada, Calif. (fls. *Brassica*).
nevadensis *Cress.*
229. **lata** (Prov.), Vancouver I., Oreg., Wash. (fls. *Lupinus*).
latior *Ckll.*
230. **lepida** (Cress.), Tex., Col.
231. **lippiæ** (Ckll.), N. Mexico, Ariz. (fls. *Lippia*).
231*a* **semilippiæ** (Ckll.), Arizona.
232. **lycii** (Ckll.), New Mexico (fls. *Lycium*, *Astragalus*).
233. **nigricornis** (Prov.), Vancouver I.
234. **rosæ** (Rob.), Ills.
235. **speciosa** (Cress.), Colo.
236. **stretchii** (Cress.), Calif.
237. **territella** (Ckll.), Colorado fls. *Prunus*).
238. **truttæ** (Ckll.), N. Mex (fls. *Iris*).
239. **virgata** (Ckll.), Calif.

Cemolobus Robertson.

240. **ipomœæ** (Rob.), Ills., Penna. (fls. *Ipomœa*).

Xenoglossa Smith.

241. **angelica** Ckll., So. Calif. (fls. *Cucurbita*).
242. **apiculata** (Cress.), Costa Rica.
243. **brevicornis** (Cress.), Tex., Nebr. (fls. *Teucrium*).
    cressonii *D. T.*
244. **davidsoni** Ckll., So. Calif.
245. **exquisita** (Cress.), Mex.
246. **fulva** Smith, Mexico.
    holopyrrha *Dours.*
247. **fulviventris** (Smith), Mexico ?
248. **gabbii** (Cress.), Costa Rica.
249. **mustelina** (Fox), L. Cal.
250. **patricia** Ckll., N. Mexico, Ariz. (fls. *Cucurbita*).
250*a* **angustior** Ckll., Ariz., Calif. (fls. *Cucurbita*).
251. **pruinosa** (Say), E. States to Ariz. (fls. *Cucurbita*).
252. **strenua** (Cress.), N. Mex., Tex., Iowa, Ills., Ga. (fls. *Cucurbita*).
    cucurbitarum *Ckll.*
252*a* **kansensis** Ckll., Kansas.
253. **utahensis** Ckll., Utah.

Xenoglossodes Ashmead.

254. **albata** (Cress.), Texas.
255. **eriocarpi** (Ckll.), New Mexico, Tex. (fls. *Eriocarpum*).
256. **excurrens** Ckll., Roswell, New Mexico.
257. **gutierreziæ** Ckll., New Mexico (fls. *Gutierrezia*).
258. **imitatrix** Ckll. and Porter, New Mexico (fls. *Sphæralcea*).

Florilegus Robertson.

259. **condigna** (Cress.), Ills., Kans.
    palustris *Rob.*
260. **lanierii** (Guér.), Cuba.

Anthedon Robertson.

261. **compta** (Cress.), Ga. to Colo.

Martinella Ckll.

262. **luteicornis** (Ckll.), New Mexico (fls. *Prosopis*).

Melissodes Latr.

263. **agilis** Cress., Tex., Colo., N. Mex., etc. (fls. *Helianthus*, etc.)
263*a* **subagilis** Ckll., Colo., Arizona (fls. *Grindelia*).
263*b* **aurigenia** (Cress.), Maine to Nev. (fls. *Helianthus*, etc.).
    ? pennsylvanica *Lep.*
264. **ambigua** Smith, Mexico.
265. **assimilis** Smith, Oaxaca, Mex.
266. **atrata** Smith, Oaxaca, Mex.
    atratula *D. T.*
267. **atripes** Cress., Tex., Ills.
268. **autumnalis** Rob., Ills.
269. **bimaculata** Lep., E. States (fls. *Ipomœa*).
    binotata *Say.*
    nigra *Lep.*
270. **blakei** Ckll., Beulah, New Mex.
271. **boltoniæ** Rob., Ills.
272. **cajennensis** (Lep.), W. Indies.
273. **caliginosa** Cress., Md., Ga.
274. **carolinensis** D. T., N. C., Ga.
    atrifrons *Smith.*
275. **chrysothamni** Ckll., Embuda, N. Mex. (fls. *Chrysothamnus*).
276. **cnici** Rob., E. States (fls. *Carduus*).
    nigripes *Smith*, ♂ (not ♀).
    ? desponsa *Smith.*
277. **coloradensis** Cress., Colo., Ills. (fls. *Compositæ*).
278. **comanche** Cress., Texas.
279. **communis** Cress., Ga., Ills.
280. **comptoides** Rob., Ills.
281. **confusa** Cress., Colo., etc.
    ruidosensis *Ckll.*, N. Mexico. (fls. *Pentstemon*, etc.).
282. **coreopsis** Rob., Ills.
283. **denticulata** Smith, E. States.
    senilis *Smith.*
    ? rustica *Say.*
284. **dentiventris** Smith, E. States (fls. *Compositæ*).
    ? americana *Lep.*
    ? desponsa *Smith.*
285. **desponsiformis** Ckll., Oregon.
286. **duplocincta** Ckll., Arizona.
287. **epicharina** Ckll., Arizona.
288. **festonata** Prov., Canada.

289. **fimbriata** Cress., Texas.
290. **floris** Ckll., V. C. (fls. *Bidens*).
291. **galvestonensis** Ckll., Texas.
292. **georgica** Cress., Ga.
293. **gilensis** Ckll., New Mex., Ariz., Colo. (fls. *Sidalcea*, etc.).
294. **glenwoodensis** Ckll., Colo.
295. **grandissima** Ckll., Fedor, Tex.
296. **grindeliæ** Ckll., N. Mex., Ariz., fls. (*Grindelia*, *Senecio*, etc.).
297. **helianthelli** Ckll., Mesilla Valley, New Mexico (fls. *Helianthus*).
298. **herricki** Ckll., New Mexico.
299. **hewetti** Ckll., Santa Fé, N. Mex. fls. *Peritoma* .
300. **hexacantha** Ckll., Arizona.
301. **hirsuta** Smith, Oaxaca, Mexico.
oajacena *D. T.*
302. **hortivagans** Ckll., Kansas.
303. **humilior** Ckll., New Mexico.
304. **illinoensis** Rob., Ills. (fls. *Ratibida*).
305. **intermedia** Cress., Texas.
306. **intermediella** Ckll., New Mex., Ariz , Calif.
306*a* **catalinensis** Ckll., Catalina I.
307. **interta** Cress., Texas.
308. **kallstrœmiæ** Ckll., New Mexico (fls. *Kallstrœmia*).
308*a* **phenacoides** Ckll., New Mex.
309. **labiatarum** Ckll., V. C. (fls. *Labiatæ*).
310. **lupina** Cress., Calif.
311. **machæranthera** Ckll., N. Mex., Ariz. (fls. *Machæranthera*, etc.).
312. **manipularis** Smith, Ga.
313. **martini** Ckll., New Mexico (fls. *Petalostemon*).
314. **maura** Cress., Cuba.
315. **melanosoma** Ckll., Fedor, Tex.
316. **menuacha** Cress., W. States.
316*a* **submenuacha** Ckll., N. Mex.
316*b* **semilupina** Ckll., So. Calif.
317. **microsticta** Ckll., Vancouver I.
318. **mimica** Cress., Cuba, Jamaica.
319. **mizeæ** Ckll., Las Vegas., N. Mex. (fls. *Grindelia*).
320. **montana** Cress., New Mexico, Colo., Ariz.
321. **morosa** Cress., Mexico.
322. **mysops** Ckll., Colo. fls. *Carduus* .
323. **nevadensis** Cress., Nevada.
324. **nigrosignata** Ckll., Arizona.
324*a* **pallidisignata** Ckll., Arizona.
325. **nivea** Rob., Ills.
326. **obliqua** Say, U. S. (fls. *Grindelia*, *Helianthus*, etc.).
327. **otomita** Cress., Mexico.
328. **pallida** Rob., Ills.
329. **pallidicincta** Ckll., New Mexico. Ariz., Kans. (fls. *Malvastrum*, *Sidalcea*, etc.).
(? ♀ of *tristis*.)
330. **parosetæ** Ckll., Mesilla Valley. New Mex. (fls. *Parosela*).
331. **pecosella** Ckll., Pecos, N. Mex.
331*a* **verbesinarum** Ckll., Las Cruces, New Mex.
332. **pernigra** Ckll., V. C. (fls. *Ipomœa* .
333. **perplexa** Cress., Tex. to Maine.
334. **personatella** Ckll., La Jolla, Cal.
335. **petalostemonis** Rob., Ills.
336. **petulca** Cress., Ga., Tex.
336*a* **suffusa** Cress., Texas, L. Cal., Ariz.
337. **pinguis** Cress., Mexico.
337*a* **velutinellus** Ckll., V. C.
338. **prælauta** Ckll., Ariz.
339. **pullata** Cress., Cuba.
340 **pygmæa** Cress., Texas.
341. **raphælis** Ckll., V. C. (fls. *Ipomœa* .
342. **rivalis** Cress., Texas.
343. **rufodentata** Smith, St. Vincent.
344. **semitristis** Ckll., Arizona.
345. **simillima** Rob., Ills. (fls. *Compositæ*).
346. **smithii** D. T., Calif.
californica *Smith*.
347. **snowi** Cress., Colorado.
348. **sphæralceæ** Ckll., New Mexico (fls. *Sphæralcea*).
349. **spissa** Cress., Texas.
350 **stearnsi** Ckll., So. Cal.
351. **suavis** Cress., Colo.
352. **tenuitarsis** Ckll., Arizona.
353. **tepaneca** Cress., Mexico.
354. **tepida** Cress., Nevada, Calif.
355. **texana** Cress., Tex., Colo.

356. **thelypodii** Ckll., Organ Mts., N. Mex. (fls. *Thelypodium*).
357. **townsendi** Ckll., N. Mex.
358. **trifasciata** Cress., Porto Rico, Jamaica.
(? ♀ of *mimica*.)
359. **trifasciatella** Ashm., St. Vincent.
360. **trinodis** Rob., Ill. (fls. *Compositæ*).
361. **tristis** Ckll., New Mexico, Ariz., Chih. (fls. *Ipomœa*, *Peritoma*, etc.).
361*a* **malvina** Ckll., Chih. (fls. *Malvaceæ*).
362. **variabilis** Rob., Ills.
363. **vernonensis** (Viereck), British Columbia.
364. **vernoniæ** Rob., Ill. (fls. *Vernonia*).
365. **vernoniana** Rob., Ills.

Macroglossapis Ckll.

366. **albilabris** (Cress.), Mexico.
367. **analis** (Lep.), Mex.
oribazi *Rads.*
368. **modesta** (Smith), Oaxaca, Mex.
369. **montezuma** (Cress.), Mexico.
370. **rubricata** (Smith), Oaxaca, Mex.

NOTES.

(1) *Euthyglossa* Rads. is omitted, as Friese states that it is *Osiris*.

(2) *Eusynhalonia* Ashm., type *Synhalonia edwardsii* (Cress.), does not seem to be a valid genus.

(3) *Meliturgopsis* Ashm. is too near *Emphoropsis*; and its type species is at present nameless, or rather, named only in MS.

(4) *Epimelissodes* Ashm., for *Melissodes atripes* Cress., is a group which I should like to recognize; but at present I do not know how to precisely limit it.

(5) *Peponapis* Rob. should not be separated for *Xenoglossa*, I think. Its type is *X. pruinosa* (Say).

(6) *Amegilla* Friese, I do not separate from *Anthophora*; neither do I separate *Anthemossa* Rob. (type *abrupta* Say). These should perhaps rank as subgenera.

(7) *Diadasiella* Ashm. I do not separate from *Anthophorula.*

(8) *Eucera* Scop. is European. *E. maculata* Lep., if correctly placed generically, is probably wrongly attributed to North America. It was based on a ♀ from the Dejean collection. It had the head black haired; thorax red haired above, beneath and at sides black haired; sides of apex of abdomen covered with blackish red hair; venter ciliated with ferruginous; wings hyaline, nervures fusco-rufous; femora black, tibiæ and tarsi ferruginous. Evidently this must be a striking insect. In former times it was not customary to put locality labels on insects at the time of capture, if at all, and errors were not uncommon. Thus *Apis bostoniana* Sulzer (for a copy of the description of which I am indebted to Mr. Titus) is supposed to be American, and from Boston; but the description and figure clearly indicate the European *Bombus hypnorum.*

(9) *Trachina* Klug (for which I take *Centris longimana* as type) would be considered by many a homonym of *Trachinus* L. *Gundlachia* was suggested by Cresson in 1865 for *C. cornuta* (which Friese, 1902, says is *difformis*), but this name is a homonym, and was replaced by *Heterocentris* Ckll. Later, Friese proposed *Rhodocentris* to include all the species with red or reddish abdomen, his first species being *difformis*. For the present, I treat *Heterocentris* and *Trachina* as distinct subgenera.

(10) *Hemisia* Klug, included two species of *Cyanocentris* and one *Trachina*. I restrict it to the former, taking *hæmorrhoidalis* as type.

(11) *Fiorentinia* D. T. (*Epeicharis* Rads.) is *Tetrapedia*. Type *T. mexicana* (Rads.)

(12) *Exomalopsis cubensis* Spinola, is omitted, being practically a nomen nudum.

(13) *Anthophora domingensis* Lep., is given by Smith as from S. Domingo, but according to Dours it is really from Senegal. (♀ 12 mm. long, face as in *A. 4-fasciata*, hair of thoracic dorsum, etc., red, mixed with black).

(14) *Anthophora holosericea* Fab., from the West Indies, is unknown to day, and of uncertain generic position. Jurine referred it to *Trachusa*.

(15) *Anthophora rufozonana* Dours, is evidently a misprint for *rufozonata*, as the latter rendering appears in the table at the beginning of the book, and also in the index.

(16) Dr. Ashmead assures me that the S. American *Ancyloscelis* seen by him is *Diadasia*. The only species seen by me represents a genus distinct from *Diadasia*. The genus is attributed to Latrielle, 1825, but apparently the first species actually described was *A. ursinus* Haliday, 1836, and this, I suppose, must be taken as the type. As I have never seen *ursinus*, I do not feel at liberty to assume that it is a *Diadasia*.

(17) *Tetralonia* Spinola, was based on Palæarctic forms. Spinola's species included *T. basizona* from Egypt, etc. The name was to replace *Macrocera* Latrielle (type the European *malvæ* Rossi), which is a homonym. The maxillary palpi are generally stated to be 5-jointed (cf. Ashmead, Patton, etc.), but I have examined *T. ruficollis* from Algeria (one of the species originally placed in the

genus by Spinola), and find the palpi 6-jointed. The male of *ruficollis* also has two raised laminæ or keels on the last ventral segment, as in some of our species of *Synhalonia*. It also appears that Latrielle, in his original account of *Macrocera*, said the maxillary palpi were 6-jointed, though the sixth joint was not very noticeable. I am quite unable to see that *T. ruficollis* Brullé, and *T. lucasi* Gribodo (the only Palæarctic species I possess) are not veritable *Synhalonia* and I therefore substitute *Tetralonia* for *Synhalonia* in the check-list. It follows from the above that *Tetralonia* is not the proper name for *T. gabbi* and kindred species referred there by American authors. These insects really do appear to have 5 jointed maxillary palpi, and the general appearance is not that of *Synhalonia*. Their affinity is rather with *Xenoglossa*, and with *Svastra* Holmberg, which Ashmead makes a synonym of *Xenoglossa*. In the maxillary palpi, *Svastra* resembles rather that group or subgenus of *Xenoglossa* which Robertson has named *Peponapis*, not typical *Xenoglossa* of Smith ; but I hardly think that these should be generically separated. The palpi of *Tetralonia exquisita* differ from those of *Svastra* in the longer terminal joint, and the shorter second joint. All things considered, I think it best to refer *T. gabbi* and its allies to *Xenoglossa* in the check list, with the remark that they may hereafter prove separable.

(18) *Synhalonia fuscipes* (Rob., 1900) becomes a homonym, because of *Tetralonia fuscipes* Moraw, 1894. It is not given a new name, however, because it is very likely the female of *S. illinoensis*.

(19) The Pennsylvania record of *Cemolobus ipomœæ* (Rob.) is based on a specimen from Lehigh Gap, collected in 1902 by Mr. Rehn.

(20) The Maine record of *Melissodes perplexa* is from Mr. Lovell.

(21) The tribe Entechniini is separated on the peculiar mouthparts.

APPENDIX.

Melissodes glenwoodensis Ckll.

Maxwell City, New Mexico, at flowers of *Grindelia*, September 2, 1899 (Miss S. L. Mize). New to New Mexico. The smooth parts of the abdomen in this species (♀) have a distinct metallic lustre, with greenish and purplish tints. This reminds one of *Florilegus condignus*, and upon comparison, I believe that *glenwoodensis* really is related to *condignus*, differing principally in the strongly plumose scopa of hind tibia, and the color of the hair on the hind legs and thorax above. This tends to break down the validity of *Florilegus*.

Melissodes blakei Ckll.

Tularosa Creek, New Mexico, at flowers of *Chrysothamnus graveolens glabrata*, October 4th (Cockerell). This differs from the type in the broader abdominal bands (more as in *mizeæ*), and the flagellum black, with only a few obscure reddish dots beneath. The form of the abdomen agrees with *blakei*; so also the venation, etc. I am rather disposed to think that *blakei* will prove to be a mountain race of *mizeæ*, although the types certainly look like different species. Although the type of *M. blakei* was taken in the Canadian Zone, the new specimen, with flower record, indicates that it belongs more properly to the Transition Zone.

Melissodes hortivagans Ckll.

So far as I can make out from the description (and it seems quite adequate) *M. variabilis* Robertson is the same. Both were published in 1905—*hortivagans* in June, *variabilis* in October. *M. hortivagans* goes far south, as is shown by a female before me captured by Mr. Wilmon Newell at Keatchie, Louisiana, June 14, 1905.

Melissodes thelypodii Ckll.

I have a ♀ from Las Cruces, New Mexico, at flowers of *Ipomæa mexicana*, collecting pollen (the large grains are entangled in the tibial scopa), August 25th (Cockerell). The specimen is somewhat smaller than the type (width of abdomen 5 mm., 5½ in the type), but otherwise identical. The affinities of the insect are with *M. tepaneca* and *M. galvestonensis*, but it is larger and more robust than these.

Melissodes texana flaveriæ n. subsp.—♀. Length about 14 mm.; width of abdomen about 5½, length of anterior wing 11½ mm. Black, with mostly pale ochraceous hair, but bands on abdominal segments 2–4 white, those on 2 and 3 interrupted (widely on 2), and oblique; scutellum fringed with black hair; hair on inner side of basal joint of hind tarsi, and most of that on inner side of their tibiæ, clear ferruginous; no black hair on vertex; hair of labrum pale yellowish; flagellum, except basal joint, red beneath; eyes silvery grey, tinted with sea green; tegulæ deep rufous; wings pale smoky, especially the broad apical margin, the costal region strongly yellowish; second submarginal cell very large and broad, receiving the first recurrent nervure some distance from the end; hair of pleura entirely pallid, with an ochreous tint; hair of fifth abdominal segment pale purplish sooty in the middle, but broadly pale ochraceous at the sides.

Agrees with *M. texana* in the general structure and appearance, markings on second and third abdominal segments, light hair in scutello mesothoracic suture, etc. It differs from *texana* in being less robust, with the hair of the ventral surface of the abdomen pale reddish (dark in *texana*), the hair at sides of fifth abdominal segment, which is much darker and redder in *texana*, the largely blackened femora (wholly deep red in *texana*), and the greenish eyes (light reddish grey in *texana*). It is also allied to *M. machæranthereæ*, which has the same pattern on the abdomen, and the same colored hair on the hind legs, but is larger than *flaveriæ*, with a red scape and partly red clypeus, broader and flatter scutellum, etc. These are, however, strictly of the same group.

M. martini, on the other hand, differs entirely in the pattern of the abdomen, and is not allied. In Robertson's table, *flaveriæ* runs to *M. coloradensis*, but it differs from that species in the general color of the pubescence, the shorter third antennal joint, the larger red tegulæ, etc. Except for the lack of black hair on the vertex, *flaveriæ* runs in my tables to *Florilegus condignus*, from which it differs in the scopa of the hind tibiæ being large and profusely plumose; the hind middle of mesothorax rather densely, uniformly covered with small but distinct punctures (with no sign of the bare space of *condignus*); and the much smaller and closer punctures of the upper part of the clypeus. Nevertheless, *flaveriæ* and *condignus* are very much alike superficially, and seen by the naked eye at the distance of about a foot, especially from behind, they could readily be taken for the same species. The first abdominal segment of *flaveriæ*, in certain lights, shows distinct metallic tints on its broad base apical margin—a further indication of resemblance to *condignus*.

Hab.—Roswell, New Mexico, at flowers of *Flaveria angustifolia*, auctt., end of August or first of September (Cockerell). At the same time and place, the *Flaveria* was also visited by the beautiful *Nomia nortoni* Cresson.

Melissodes nigrosignata Ckll.

My wife collected two specimens near San Ignacio, New Mexico, August 15, 1899. These were unfortunately overlooked, and the species was later described from material collected by Snow in Arizona.

Melissodes pallidicincta Ckll

A new locality in Gibson, New Mexico, September 30th (Anna Gohrman).

Melissodes atripes Cresson, var. **acomanche** n. var.

♂. Like the male of *atripes*, but scutellum with much brown-black hair, and hair of hind femora and tibiæ dull reddish instead of black; that at apex of abdomen also more or less pallid. This is a form of *atripes* in which the hair of the hind legs become pale and reddened, while as if in compensation, dark hair appears on the scutellum. Not unnaturally an eminent authority on bees had labelled it *M. comanche*, but the lively ferruginous of the hair on the hind legs of *comanche*, especially that of the tarsi (which in *acomanche* remain black), is entirely different, and the end of the apical plate of the abdomen is broader in *acomanche*. From *M. caliginosa*, *acomanche* is easily known by the light reddish hair of the pleura, that of *caliginosa* being black. There is no doubt that *atripes* and *comanche* are closely allied, and it is possible that *acomanche* is a hybrid between them.

Hab.—Fedor, Texas, June 11, 1896 (*Birkmann*).

Melissodes melandri n. sp.

♀.—Runs in my tables nearest to *M. raphaelis*, having, like it, the hair of the pleura partly black and partly light. It is a species of the stature and general appearance of *M. communis* Cress., from which it differs as follows: Flagellum darker; hair of occiput black; hair of mesothorax all black, except a slight admixture of greyish white along the extreme anterior margin, not easily noticed, and a little tuft of whitish at the posterior corners; hair of pleura black with some white intermixed, more white below ; wings smaller and not reddish ; stigma darker ; hair of anterior and middlelegs darker, that on inner side of basal joint of hind tarsus brown black ; abdomen rather longer, with less light hair, median bands on segments 2 and 3 somewhat oblique, that on 3 much narrower, and almost failing in the middle, while 4 has the white bands only distinct laterally ; hind margin of first segment with only the almost imperceptible edge pallid ; hind margins of first four ventral segments broadly dark rufous. Hair of face white ; some black hair on each side of antennæ ; hair of metathorax white, of scutellum black ; tibial scopa abundant, very strongly plumose, pale reddish.

Hab.—Fedor, Texas, Oct. 4, 1899 (*Birkmann*). Named after Mr. A. L. Melander, in recognition of his work on the insects of Texas.

Melissodes bruesi n. sp. (*petalostemonis* var.?)

♀—Runs in my table to *M. tepaneca* Cr., and *galvestonensis* Ckll. From both of these it is easily known by the third abdominal segment having a narrow straight transverse median light hair-band, whereas in *tepaneca* and *galvestonensis* the whole base of the segment is covered with light hair, and the lower edge of this hairy region is conspicuously concave. The hair of the thorax above in *bruesi* is neither so dense nor so brightly colored as in the other two species. The new species has the general stature and appearance of *M. communis* Cress., from which it differs thus : hair of thorax above reddish, without any black, that on scutellum rufo-fulvous ; head somewhat broader ; tegulæ a lively red ; wings rather paler ; band on third abdominal segment about or hardly half as wide ; black hairs as sides of base of fourth longer. The median bands on segments 2 and 3 are not at all oblique ; the subbasal area on 2 is distinctly punctured. Hind margins of ventral segments 2 and 3 broadly red.

Hab.—Fedor, Texas, May 5, 1902 (*Birkmann*). In addition to the type, there are four other specimens ; the species flies as late as June 12. One of the specimens is marked October, but it is much rubbed, and the hind margins of the abdominal segments are broadly reddened ; the disc of the mesothorax, which in the type is shining and sparsely punctured, appears to be much more closely punctured in this example, but the pin has destroyed the part which is most characteristic. It is very possible that this autumnal example indicates another species, but if so, it cannot be defined without better material. Named after Mr. C. T. Brues, who has done good work on Texan bees.

In Robertson's table, *M. bruesi* runs nearest to *M. petalostemonis* Rob., but the bare patch on segment 4 is much elongated transversely, and the vertex carries some dark hairs. It may be that *bruesi* is a form of *petalostemonis*, but Robertson's account of the latter is very brief, and the statements in his table (1905) do not wholly accord with his original description (1900). From the name, it is inferred that *M. petalostemonis* visits *Petalostemon*, and is therefore probably a species flying in July and August.

Melissodes wheeleri n. sp.

♀. In my tables runs to *M. communis* Cress., which it resembles in size and appearance, differing, however, as follows: hair of labrum lighter, fulvous at apex; area behind ocelli with a large amount of black hair; eyes reddish (green in *communis*); patch of black hair on mesothorax much larger, extending forward at anterior corners; wings practically clear (very smoky in *communis*); subbasal area on second abdominal segment practically impunctate; median band on third segment narrower; fourth segment with no bare patch, but the hind margin covered with black hair. The light hair is white, not at all ochreous; the hair of the pleura is pale throughout, except a few hardly noticeable dark hairs just under the wings. The ventral surface of the abdomen has dark fuscous hair.

Compared with *M. hortivagans*, it is easily known by the smaller size and color of the thoracic hair. From *M. humilior* it differs conspicuously by the light ferruginous scopa of hind legs, much greater amount of black hair on thorax, etc. In Robertson's table it runs to *M. boltoniæ*, but differs by the greater amount of black hair on anterior part of thorax, and the second abdominal segment not distinctly punctured between the bands. The median band on the second segment is broken in the middle, but the parts are not distinctly oblique as they are in *M. perplexa*.

Hab.—Fedor, Texas, May 23, 1902 (*Birkmann*). Named after Dr. W. M. Wheeler, in recognition of his work on the insects of Texas.

Melissodes wickhami n. sp.

♀. Length about 13 mm., the abdomen being rather long. In my tables it runs to *M. communis* and *hortivagans*, but it is quite distinct from these. From *hortivagans* it differs at once by the narrower form (especially the abdomen), the abdomen much less distinctly banded, the tibial scopa of hind legs much less abundant, etc At a glance the abdomen appears to be one-banded, thus recalling *M. epicharina*, but the single distinct band is at the base of the second segment, and is white. The color of the thoracic hair is also strongly suggestive of *epicharina;* but the wings are paler than in that species, the tibial scopa is less abundant, and there are various other differences. From *M. communis* it is at once separated by the appearance of the abdomen.

Eyes pale reddish-grey; flagellum scarcely reddened beneath; vertex with much black hair: thorax above with greyish-white hair, the hind part of mesothorax, and the scutellum, bare, shining, with strong punctures; the hind borders of scutellum with black hair, and the hair on mesothorax posteriorly suffusedly blackish, but there is no well-defined black patch; hair of pleura, under part of thorax and mesothorax dull white; tegulæ shining piceous; wings only moderately dusky, stigma and nervures piceous; hair of legs pale, scopa of hind legs scarcely yellowish; hind margins of abdominal segments 1 to 4 testaceous; subbasal area on 2 with distinct but sparse punctures; median band on 2 very faint, slightly oblique, interrupted medially; 3 and 4 greyish from a fine covering of pale hair, the bands evanescent; no bare space on 4; 5 and 6 with black hair; hind margins of ventral segments very broadly ferruginous.

Hab.—Fedor, Texas, May 3, 1899 (*Birkmann*). Also one taken May 10. Named after Mr. H. F. Wickham, who has made important contributions to the entomology of Texas. In Robertson's table this runs to *M. vernoniæ*, but differs by the red hair on inner side of hind tarsi, and various other characters. *M. vernoniæ* is an oligotropic visitor of *Vernonia fasciculata*, and so cannot be a spring species.

I can hardly put forward four new species of the group of *Melissodes communis* without some sort of explanation or apology. At first sight, one would readily suppose *M. communis* to be indeed a very common, widespread and variable insect. This was the earlier interpretation of it; but Robertson, who has very carefully studied the subject in Illinois, finds it possible to separate a number of species which are oligotropic, and doubtless of more or less local occurrence. I have formerly separated others, and the present indications are that the southern states, east of the 100th meridian, are very rich in insects of this group, the several species being attached to different genera or families of plants, especially Compositæ. If this view is correct, there is in the south a very rich field for investigation, which will yield results of great interest if the insects are collected in adequate series, and their flower-visiting habits recorded.

In order to make the identification of the above four species easier, a special table is presented:—

FEMALES.

Hair on inner side of basal joint of hind tarsi black or fuscous (dark red in *raphaelis*)..1.
Hair on inner side of basal joint of hind tarsi ferruginous (dark in *raphaelis*)...6.
1. Thorax without black hair above; size rather large (Colo.) **glenwoodensis** Ckll.
Thorax with conspicuous black hair above..............................2.
2 Hair of middle of front of mesothorax black, of pleura largely black. **melandri** Ckll.
Hair of middle of front of mesothorax pale................................3.
3 Comparatively large species, of Colorado..................**mysops** Ckll.
Smaller species, of the S. and E. States, and E. Mexico...................4.
4. Hair of thorax in front ochreous, this extending about as far back as front of tegulæ (Elkhart, Indiana, from Mr. Lovell).......**simillima** Rob.
Hair of thorax in front greyish-white, this not extending so far back; first abdominal segment with green and purple tints.................5.
5. Facial quadrangle about square; flagellum scarcely reddened beneath (Georgia; cotype)..................................**perplexa** Cresson.
Facial quadrangle conspicuously broader than long; flagellum strongly reddened beneath (Mexico)......................**raphaelis** Ckll.
6. Thorax without dark hair above; tegulæ and flagellum beneath red. **bruesi** Ckll.
Thorax with dark hair above..7.
7. Subbasal region of second abdominal segment not obviously punctured; wings hyaline, not smoky or reddish; the whole apical margin of fourth abdominal segment with black hair..............**wheeleri** Ckll.
Subbasal region of second abdominal segment obviously punctured, especially at sides; apical margin of fourth abdominal segment with light hair, except perhaps in middle......................................8.
8. Scopa of hind tibiæ thin, little plumose; abdomen longer..**wickhami** Ckll.
Scopa of hind tibiæ thick, strongly plumose; flagellum red beneath........9.
9 Hair of pleura entirely pale (Georgia; cotype).......**communis** Cresson.
Hair of pleura black, with some white intermixed (Mexico). **raphaelis** Ckll.

Melissodes microsticta Ckll.

The range of this species is greatly extended by a ♂ from Colorado in the Cresson collection. It shows rather more abundant black hair on the upper part of head and thorax than does the type, but otherwise agrees.

Melissodes autumnalis Rob.

A ♀ from Fedor, Texas, November, 1903, is exceedingly like *M. cnici*, but differs by the longer and more abundant hair of thorax above; the hair of occiput light, while that of vertex is entirely black (thus reversing the condition in *cnici*); hair of cheeks partly light and partly dark, but mainly light; mouth-parts smaller and weaker in every way. The abdomen is quite without bands. This agrees so nearly with Robertson's brief diagnosis of *M. autumnalis*, that I suppose it to be the same. It was collected by Mr. Birkmann.

Tetralonia annæ n. sp.—♀. Length about 13 mm.; width of abdomen 5; length of anterior wing about 8½. Black, the head and thorax with greyish white hair; antennæ black, but the first few joints of the flagellum appear somewhat reddish, from a very fine reddish pile or tomentum; eyes reddish grey; malar space distinct; mesothorax dullish, with conspicuous but not deep punctures; tegulæ rufous, darker in front; wings slightly dusky; hair of anterior tarsi and middle tibiæ reddish fuscous; of middle tarsi and hind tibiæ and tarsi more orange, but ferruginous within; hind tibiæ and basal joint of tarsi broad, the scopa consisting of coarse bristles; hind spurs normal; abdomen with broad bands of pale grey or greyish white (not in the least yellowish) tomentum on segments 2 to 4; segment 5, like those before it, is black at base, but the broad fringe is fuscous for the middle third, with the outer thirds white, the white overlapped by a few dark hairs.

In my tables this will run in the neighborhood of *T. cressoniana*, *actuosa* and *donata*; or except for its size, near to *speciosa*. These species are easily separated as follows:

Mesothorax with erect fuscous hair………………**donata** (Cress.).
Mesothorax without such hair……………………… 1.
1. Length much over 15 mm………………**speciosa** (Cress.).
Length less than 15 mm………………………2.
2. Hair of thorax above fulvous; abdominal bands not *very* broad; base of second segment covered with white tomentum..**cressoniana** (Ckll.).
Hair of thorax above not fulvous………………………3.
3. Smaller; mesothorax dull without obvious punctures; bands of abdomen not especially broad; base of second segment with inconspicuous pale hair………………**actuosa** (Cress.).
Larger; mesothorax distinctly punctured; bands of abdomen very broad; base of second segment covered with black tomentum……**annæ** Ckll.

T. annæ differs from *belfragei* by the smaller size, much narrower apical plate of abdomen, abdominal bands not brilliant white, color of hair on outer side of hind legs, etc.; from *cordleyi* by the much smaller size, sculpture of mesothorax, etc.; from *truttæ* by the broad abdominal bands, more pointed apical plate, color of hair of thorax, etc. The mandibles have a depressed ferruginous spot just before the apex.

Hab.—Gibson, New Mexico, Sept. 15, 1905. (*Miss Anna Gohrman*).

Miss Gohrman also sends *Anthophora montana* Cress., from Gibson, collected on the same day. The locality is near Gallup, in a region whence no bees have hitherto been obtained.

Tetralonia lepida (Cresson).

A brightly-colored ♂ from Texas (Cresson coll.) is so like the ♀ *T. cressoniana* (except for the usual sexual differences) that it is difficult to believe that they do not belong together. The pubescence, including the abdominal bands, is quite the same. However, the differences in the sculpture of the thorax and the marginal cell, mentioned in my original account of *cressoniana*, remain valid. It seemed unlikely that these differences could be sexual, or due to individual variation, but I now consider the validity of *cressoniana* somewhat doubtful, in the absence of more material.

Tetralonia gillettei (Ckll.).

The range is greatly extented by a ♂ found by Mr. Birkmann at Fedor, Texas, May 17, 1904. The wings are not so reddened as in the type, and there is a small supraclypeal mark.

Xenoglossa pruinosa (Say).

Lee Co., Texas, June (*Birkmann*). New to Texas.

THYGATER Holmberg.

Through the kindness of Dr. F. Ameghino, I have just received a copy of Holmberg's work, "Delectus Hymenopterologicus Argentinus," and I find that *Thygater* is the same as *Macroglossapis*, having *M. terminata* (Sm.) for its type. A second species is *Macroglossapis chrysophora* (*Thygater chrysophora* Holmbg.). For some reason which I do not understand, Holmberg on p. 385 cites *Thygater* as having been published in his paper in Actes Acad. Cordoba, 1884, p. 133, although on p. 506 he states that it is a new genus. If it had really been published in 1884, it would of course have priority over *Macroglossapis;* but while I do not possess the earlier paper, I saw it at the British Museum and made careful note of its contents, while my wife made copious extracts, and copied several figures. We found no description of *Thygater* whatever, nor did Dalla Torre, who cites all the species in this paper in his catalogue. Schrottky also, in his catalogue of Argentine Hymenoptera (1903) has no *Thygater*, though he cites Holmberg fully; and there is no allusion to the genus in Index Zoologicus.

List of the Genera of the PAGIOPODOUS HEMIPTERA-HETEROPTERA, with their Type Species, from 1758 to 1904 (and also of the AQUATIC and SEMI-AQUATIC TROCHALOPODA).

BY G. W. KIRKALDY.

The object of this list is to enumerate the genera of the Heteropterous Pagiopoda with their synonyms and type species, with a reference in each instance where possible, to a figure of at least some part of the genotype, or failing that, of a closely related species. It should be considered as a bibliographical contribution, for though a large proportion of the genera has been studied by the compiler, many still remain known only by the descriptions, this being the case especially with several described during the last two or three years, with insufficient indication of their affinities.

With a few exceptions, all the references have been checked by comparison with the original works in the compiler's library, those absent therefrom being marked with an †. An apparently new type fixation is indicated by an *; while the fact that the figure cited is from the typical specimen is indicated by a §.

The abbreviations will, it is believed, be easily comprehended. Two instances may be taken:

ANTHOCORIDÆ, genus 4, is "*Lasiochiloides* Champion, 1900, Biologia Centrali-Americana, Heteroptera, ii, p. 311—the only species (therefore type) is *denticulatus* Champion, and is figured on Pl. XIX, fig. 3."

MIRIDÆ, genus 4, is "*Megalodactylus* Fieber, 1858, Wiener Entomologische Monatschrift, ii, p. 317—the only species (therefore type) is *Capsus macularubra* Mulsant & Rey, and the type species is figured in Reuter, 1878, Acta Societatis Scient. Fennicæ, xiii (pt. 1), Pl. II, fig. 7. (Vol. XIII of this publication is paged continuously, but "pt. 1," "pt. 2," or "pt. 3" is added, as the plates of each tome are not similarly continuous.)

Twelve families of Pagiopoda have been admitted, but with reluctance and only temporarily. The ANTHOCORIDÆ would not have been separated from the MIRIDÆ, had it not been that in that case the CLINOCORIDÆ and POLYCTENIDÆ must have been added (the latter seem to lead to the PEDICULIDÆ, though the last are too distantly related even to be ranked as Hemiptera at present). The CERATOCOMBIDÆ have strong affinities to the ANTHOCORIDÆ on the one hand and to the ACANTHIIDÆ on the other. The AEPOPHILIDÆ are also closely related to the CERATOCOMBIDÆ and ACANTHOCORIDÆ. The ACANTHIIDÆ lead very naturally to the OCHTERIDÆ, and it is doubtful if the latter can reasonably be separated from the NAUCORIDÆ, which by many authors are united with the BELOSTOMATIDÆ.

The fact is that the Pagiopoda are as a whole very homogeneous, and for the present it seems best to keep up a number of families.

The most recent monographs, catalogues, works with detailed illustrations, etc., on these families are as follows:

1849.—50 HERRICH SCHÄFFER, G. A. W.—"Die Wanzenartigen Insekten," ix, 1–348, pls. 289–324. The early part deals with aquatic forms.

1852 (?).—FIEBER, F. X —"Genera Hydrocoridum" and "Species Generis Corisa," Abh. böhm. Ges. Wiss. (5), vii, 181–260, 6 pls. Deals with aquatic forms.

1878–'96.—REUTER, O. M.—"Hemiptera Gymnocerata Europæ," Act. Soc. Sci. Fenn., xiii, 1–568 and separate (Helsingfors), vol. iv and v, 571 pp. (In all 34 pls. and 1139 pp). Deals with a part of the Palæarctic MIRIDÆ and is *facile princeps* among works on Hemiptera up to the present.

1884.—IDEM.—"Monographia Anthocoridarum," Act. Soc. Sci. Fenn., xiv, 1–204.

1890.—ATKINSON, E. T.—"Catalogue of the Insects, No. 2. . . . Fam. Capsidæ," J. A. S. Bengal, lviii, pt. 2, suppl. 25–199. Most recent catalogue of the Miridæ.

1891.—REUTER, O. M.—"Monographia Ceratocombidarum," Act. Soc. Sci. Fenn., xix, No. 6, pp. 1–28, pl. 7.

1896.—LETHIERRY & SEVERIN.—"Catalogue Général des Hémiptères," iii, 215–255. Most recent catalogue of Anthocoridæ, Ceratocombidæ, Acanthiidæ, etc.

1896–1904.—MONTANDON, A. L.—Numerous revisions of Naucoridæ, Belostomatidæ and Nepidæ.

1904.—KIRKALDY, G. W.—"Ueber Notonectiden," Wiener Ent. Zeit. xxiii, 93–135. A revision of the family.

Division A.—PAGIOPODA.

Fam. 1.—ANTHOCORIDÆ.

Monogr.: Reuter, 1884, Act. Soc. Sci. Fenn., xiv., 1-204.

Subfamily 1.—ANTHOCORINÆ.

Genus 1.—**Lyctocoris** Hahn, 1836, Wanzen. Ins., iii, 19. Type **domesticus** (Schill.) Hahn, fig. 243 [= *campestris* (Fabr.)].

Subg. 1.—DOLICHOMERIUM Kirkaldy, 1900, Ent., xxxiii, 242 (= ‖ *Dolichomerius* Reuter, 1871, O. V. A. F., xxviii, 557). Type **elongatus** Reuter.

Subg. 2.—METRIOSTELES Reuter, 1884, Act. Soc. Sci. Fenn., xiv, 6. Type **Signoreti** Reuter.

Genus 2.—**Euspudaeus** Reuter, 1884, op. c., 5. Type **funebris** (Motsch.), Reuter.

Genus 3.—**Lasiochilus** Reuter, 1871, O. V. A. F., xxviii, 562. Type **pallidulus** Reuter, pl. 7, f. 5. ♀

Subg. 1.—DILASIA Reuter, op. c., 563. Type **fuscula** Reuter, pl. 7, f. 6. ♀

Subg. 2.—SEMIOTOSCELIS Reuter, 1884, Act. Soc. Sci. Fenn., xiv, 15 (= *Semiotoscles* Waterhouse, 1902, Index Zool., 341). Type **curvicrus** Reuter.

Subg. 3.—HAPA F. B White, 1878, P. Z. S. Lond., 465. Type **contorta** White, pl. 31, f. 1. ♀

Genus 4.—**Lasiochiloides** Champion, 1900, Biol. Centr. Amer. Het., ii, 311. Type **denticulatus** Champion, pl. 19, f. 3. ♀

Genus 5.—**Nesidiocheilus** Kirkaldy, 1902, Fauna Hawaii., iii, 127. Type **hawaiiensis** Kirkaldy.

Genus 6.—**Lasiocolpus** Reuter, 1884, Act. Soc. Sci. Fenn., xiv, 5. (Type figured by Champion, op. c., pl. 19, f. 5, ♀). Type **sinuaticollis** Reuter.

Genus 7.—**Eulasiocolpus** Champion, 1900, Biol. Centr. Amer. Het., ii, 313. Type **megalops** Champion, pl. 19, f. 6. ♀

Genus 8.—**Lasiocolpoides** Champion, op. c., 313. Type **ciliatus** Champion, pl. 19, f. 8. ♀

Genus 9.—**Plochiocoris** Champion, op. c., 314. Type **longicornis** Champion, pl. 19, f. 9. ♀

Genus 10.—**Oplobates** Reuter, 1895, Ent. Mo. Mag., xxxi, 170 (= *Hoplobates* Lethierry & Severin, 1896, Cat. Gén. Hém., iii, 239). Type **femoralis** Reuter.

Genus 11.—**Xylocoris** Dufour, 1831, Ann. Sci. Nat. Paris, xxii, 423. Type **rufipennis** Dufour, figure ♀ = *cursitans* Fall. [(= *Piezostethus* Fieber, 1860, Wien. Ent. Mon., iv, 265, = *Piestostethus* Marshall, 1868, Ent. Mo. Mag., iv, 281. Type *rufipennis* (Dufour))].

Subg. 1.—STICTOSYNECHIA Reuter, 1884, Act. Soc. Sci. Fenn., xiv, 30 (*lativentris* (Sahlb.) is figured is Not. faun. Fenn. Forh., xi, pl. 1, f. 1 ♀). Type **maculipennis** (Baer).

Subg. 2.—ARROSTELUS n. n. (= ‖ *Arrostus* Reuter, 1884, Act. Soc. Sci. Fenn., xiv, 31). Type **flavipes** (Reut.) Reuter.

Genus 12.—**Poronotellus** Kirkaldy, 1904, Entom., xxxvii, 280 (= || *Poronotus* Reuter, 1871, O. V. A. F., xxviii, 561). Type **constrictus** (Stål.) Champ.

Genus 13.—**Asthenidea** Reuter, 1884, Act. Soc. Sci. Fenn., xiv, 5 (*A. bifasciata* Champ. is figured by him pl. 19, f. 13). Type **temnostethoides** Reut.

Genus 14.—**Lilia** F. B. White, 1879, Ent. Mo. Mag., xvi, 147. Type **dilecta** White.

Genus 15.—**Macrotrachelia** Reuter, O. V. A. F., xxviii, 566. Type **nigronitens** (Stål), Reut., pl. 7, f. 9.

Genus 16.—**Macrotracheliella** Champion, 1900, B. C. A. Het., ii, 322· Type **lævis** Champ., pl. 29, f. 21. §

Genus 17.—**Montandoniella** Puton, 1888, Rev. Ent. vii, 255. Type **dacica** Puton.

Genus 18.—**Ectemnus** Fieber, 1860. Wien. Ent. Mon., iv, 264. Type **reduvinus** (H. S., Wanz. Ins. i, f. 973), Fieber.

Genus 19.—**Temnostethus** Fieber, op. c., 263 (= *Tmetostethus*, *Stethotomus* Marshall, 1868, Ent. Mo. Mag., iv, 281). Type **pusillus** (H. S., ix, f. 977) Reuter, 1884.

Genus 20.—**Elatophilus** Reuter, 1884, Act. Soc. Sci. Fenn., xiv, 56. (*E. stigmatellus* (Zett.), is figured as *Anthocoris albipennis* Herr. Schaff., Wanz. Ins., ix, f. 976). Type **nigellus** Zett.^

Subg. 1.—EUHADROCERUS Reuter, op. c., 62. Type crassicornis (Reut.) Reut.

Genus 21.—**Anthocoris** Fallén, 1814. Spec. Nov. Hem. Disp. Meth., 9 (Type figured as *Rhynarius sylvestris* in Hahn Wanz. Ins., i. f. 56) = *Rhynarius* Hahn, 1832, Wanz. Ins., i, 104. Type *sylvestris* (L.) Hahn, f. 56; = *Leptomeris* Laporte, 1832, Essai Hém., 6. Type *picta* Laporte; = *Phyllocoris* Costa, 1847, Atti. R. Ist. Incorr., Sc. Nap., vii, 264. Type *nemorum* [= ? *sylvestris* (L.)]; = ? *Zopherocoris* Reuter, 1871, O. V. A. F., xxviii, 565. Type *armatus* (Stal) Reuter, pl. 7, f. 8. Type **nemorum** (L.) West. (= *sylvestris* (L.).

Genus 22.—**Tetraphleps** Fieber, 1860, Wien. Ent. Mon., iv, 262. Type **vittatus** (Fieb.) Fieb. pl. 6, F. §

Genus 23.—**Acompocoris** Reuter, 1875, Bih. Vet. Ak. Handl., iii, 63. (Type figured as *Temnostethus lucorum* in Douglas & Scott, Brit. Hem., pl. 16, f. 5).—Type **pygmæus** (Fall.) Reut.

Genus 24.—**Triphleps** Fieber, 1860, Wien. Ent. Mon., iv, 266. Type **nigra** (Wolff, Icon. Cim., v, f. 161). r

Subg. 1.—DIMORPHELLA Reuter, 1884, Act. Soc. Sci. Fenn., xiv, 92. Type agilis (Flor).

Genus 25.—**Paratriphleps** Champion, 1900, B. C. A. Het., ii, 328. Type **læviusculus** Champ., pl. 19, f. 26. !

Genus 26.—**Ragnar** Kirkaldy, 1904, Entom., xxxvii, 280 (= || *Melanocoris* Champion, 1900, op. c., 329). Type **obovatus** Champion, pl. 19, f. 27. !

Genus 27.—**Blaptostethus** Fieber, 1860, Wien. Ent. Mon., iv, 265. Type **piceus** Fieb., pl. 6, N. !

Genus 28.—**Pachytarsus** Fieber, op. c., 262. Type **crassicornis** Fieb., pl. 6, E. !

Genus 29.—**Odontobrachys** Fieber, op c., 264. Type **nigra** Fieber, pl. 6, L.

Genus 30.—**Cyrtosternum** Fieber, op. c., 265. Type **flavicorne** Fieber, pl. 6, O.

Genus 31.—**Brachysteles** Mulsant, 1852, Ann. Soc Linn. Lyon, 104. [I have only the reprint (p. 124) in 'Opuscula Entom.' The type is figured in Fieber, 1860, Wien. Ent. Mon., iv, pl. 6, Q]. Type **pilicornis** Muls [= *parvicornis* (Costa).]

Subg. 1.—DYSEPICRITUS Reuter, 1884, Act. Soc. Sci. Fenn, xiv, 115. Type rufescens (Costa) Reut.

Subg. 2.—WOLLASTONIELLA Reuter, op. c, 116 Type obesulus Wollast).

† Genus 32.—**Xyloecocoris** Reuter, 1879. O. Finsk. Vet. Soc Forh., xxi, 40. Type **ovatulus** Reut.

Genus 33.—**Physopleurella** Reuter, 1884, Act. Soc. Sci. Fenn., xiv, 114. Type **mundulus** (White).

Genus 34.—**Buchananiella** Reuter, op. c., 114 Type **continuus** (White Reuter.

Genus 35.—**Cardiastethus** Fieber, 1860, Wien Ent. Mon., iv, 266, pl. 6, R. Type **luridellus** Fieb. = || *Dasypterus* Reuter, 1871, O. V. A. F. xxviii, 564. Type *limbatellus* (Stål), Reut., pl. 7, f. 7.

Subg. 1.—ORTHOSOLENIA Reuter, 1884, Act. Soc. Sci. Fenn., xiv, 131. Type brounianus (White), Reuter!

† Genus 36.—**Xylocoridea** Reuter, 1876, Pet. nouv. Ent., ii, 55. Type **brevipennis** Reut.

Genus 37.—**Hypophloeobiella** Reuter, 1884, Act. Soc. Sci. Fenn. xiv, 114 (the type is figured in Baerensprung, 1858, Berlin, Ent. Zeit, ii, pl. f. 4). Type **rogeri** (Baeren.), Reut.

Genus 38.—**Lasiella** Reuter, op. c., 114. Type **picea** Reut.

Genus 39.—**Lasiellidea** Reuter, 1895, Ent. Mo. Mag., xxxi, 172. Type **glaberrima** Reuter.

Genus 40.—**Solenonotus** Reuter, 1871, O. V. A. F., xxviii, 559. Type **sulcifer** (Stål.), Reuter, pl. 7, f. 3.

Genus 41.—**Dufouriellus** n. n. = || *Xylocoris* auctt. (the type is figured in Dufour, Ann. Soc. Ent. France, ii, pl 6, f. 3 !.) Type **ater** Dufour.

Genus 42.—**Scoloposcelis** Fieber, 1864, Wien. Ent. Mon. viii, 66. Type **crassipes** (Flor), Fieber, pl. 1, f. 1 [= *pulchella* (Zett.).]

Genera of Doubtful Position.

Genus 43.—**Calliodis** Reuter, 1871, O. V. A. F., xxviii, 558. Type **picturata** Reuter, pl. 7, f. 2 !

Genus 44.—**Amphiareus** Distant, 1904, Ann. Mag. Nat. Hist. (7) xiv, 220. Type **fulvescens** (Walker), Dist.

Genus 45.—**Arnulphus** Distant, op. c., 220. Type **aterrimus** Dist.

Genus 46.—**Lippomanus** Distant, op. c., 221. Type **hirsutus** Dist.

Genus 47.—**Ostorodias** Distant, op. c., 219. Type **contubernalis** Dist.

Genus 48.—**Sesellius** Distant, op. c., 221. Type **parallelus** (Motsch.), Dist.

Subfamily 2.—MICROPHYSINÆ.

Genus 1.—**Microphysa** Westwood, 1834, Ann. Soc. Ent. France, iii, 642 = ‖ *Loricula* Curtis, 1833, Ent. Mag., i, 198 = ‖ *Zygonotus* Fieber, 1860, Wien. Ent. Mon., iv, 261, pl. 6, D. Type **pselaphiformis** (Curtis), Westw., pl. 6, f. 3.

Genus 2.—**Myrmedobia** Baerensprung. 1857, Berlin, Ent. Zeit., i, 161 = *Idiotropus* Fieber, 1860, Wien. Ent. Mon., iv, 261, pl. 6, f. C. Type *tristis* Fieb., 1861, (= *tenella* Zett.) = *Myrmedonobia* Marshall, 1868, Ent. Mo Mag., iv, 281 = *Pseudophleps* Douglas & Scott, 1871, op. c., viii, 61. Type *inconspicua* Douglas & Scott. Type **coleoptrata** (Fall.), Baer.

Subfamily 3.—TERMATOPHYLINÆ.

Genus 1.—**Termatophylum** Reuter, 1884, Wien. Ent. Zeit., iii, 218. Type **insigne** Reut. ! (fig.).

Family 2.—MIRIDÆ.

Subfamily 1.—ISOMETOPINÆ.

Genus 1.—**Isometopus** Fieber, 1860, Wien. Ent. Mon., iv, 259, pl. 6, A = ‖ *Cephalocoris* Stein, 1860, Berlin Ent. Zeit., iv, 79. Type **intrusa** (H.-S.), Distant, 1904.

† Genus 2.—**Myiomma** Puton, 1872, Pet. nouv. Ent. i, 177 (type figured in Puton, 1873, Ann. Soc. Ent. France (5), iii, pl. 1, f. 3 !). Type **fieberii** Puton.

Genus 3.—**Turnebus** Distant, 1904, Faun. Brit. Ind. Rh., ii, 485. Type **cuneatus** Distant, fig. 318.

Genus 4.—**Sophianus** Distant, 1904, l. c. Type **alces** Distant, fig. 319.

Subfamily 2.—MIRINÆ.

Tribe 1.—CHLAMYDATINI (= *Plagiogastharia* Reuter).

Genus 1.—**Tuponia** Reuter, 1875, Bih. Vet. Ak. Handl., iii, 53 (*pallida* figured in Reuter, Act. Soc. Sci. Fenn., xiii, pt. 1, pl. 1, f. 1, a-e). Type **lethierryi** Reuter.

Genus 2.—**Eurycranella** Reuter, 1904, Ofv Finsk. Vet. Forh., xlvii, No. 4, p. 25. Type **geocoriceps** Reuter.

Genus 3.—**Maurodactylus** Reuter, 1878, Act. Soc. Sci. Fenn., xiii, pt. 1, 27. Type **nigricornis** Reuter, pl. ii, f. 4.

Genus 4.—**Megalodactylus** Fieber, 1858, Wien. Ent. Mon., ii, 317 (type fig. Reuter, op. c., pt. 1, pl. 2, f. 7). Type **macularubra** (Muls. Rey), Fieber.

Genus 5.—**Asciodema** Reuter, op. c., 33. Type **obsoletus** (Douglas & Scott), Reuter, pl. iii, f. 2.

Genus 6.—**Damioscea** Reuter, 1884, Act. Soc. Sci. Fenn., xiii, 443. Type **komaroffi** (Yakovlev), Reuter.

Genus 7.—**Campylognathus** Reuter, 1890, Rev. Ent., ix, 258. Type **nigrigenis** Reuter, fig.

Genus 8.—**Paredrocoris** Reuter, 1878, Act. Soc. Sci. Fenn., xiii, 36. Type **pectoralis** Reuter, pl 1, f. 5.

Genus 9.—**Tragiscocoris** Fieber, 1861, Eur. Hem., 300 = (*Tragiscus* Fieber, 1858, Wien. Ent. Mon., ii, 319 (type fig. in Reuter, Act. Soc. Sci. Fenn., xiii, pt. 1, pl. iii, f. 4). Type **fieberi** Fieber.

Genus 10.—**Auchenocrepis** Fieber, 1858, Wien. Ent. Mon , ii, 322 (type fig. in Reuter, op. c., pl. ii, f. 8). Type **dorsalis** Fieber, (= *minutissima* Rambur).

Genus 11.—**Sthenarus** Fieber, 1858, op. c., 321 (type fig. in Reuter, op. c., pl. 3, f. 1), *Phœnicocoris* Reuter, 1875, Bih. Vet. Ak. Handl., iii, 55. Type *modestus* (Meyer, Verz. Schweiz. Rhynch., f. 5), Reuter. Type **rotermundi** (Scholtz).

Genus 12.—**Campylomma** Reuter, 1878, Act. Soc. Sci. Fenn., xiii, pt 1, 52 (*verbasci*, fig. Reuter, op. c., pl. iii, f. 6). Type **nigronasuta** Reut. Dist., 1904.

Genus 13.— **Monosynamma** Scott, 1864, Ent. Ann., 160 = *Microsynamma* Fieber. 1864, Wien. Ent. Mon., viii, 74.[1] Type *scotti* Fieb., pl. 1, f. 6 (= *nigritulus* Zett.) = *Neocoris* Douglas & Scott, 1865, Brit. Hem., 424. Type *bohemani* D. & S., pl. 13, f. 9. Type **scotti** Scott, frontisp. f. 5 (= *nigritulus* Zett.).

Genus 14.—**Chlamydatus** Curtis, 1833, Ent. Mag., i, 19 (*pulicarius* (Fall. fig. in Reut. Act. Soc. Sci. Fenn., pt. 1, pl. 2, f. 8) || = *Attus* Hahn, 1832, Wanz. Ins., ii, 116. Type *pulicarius* (Fall.), Hahn = *Eurymerocoris*[2] Kirschbaum, 1855, J. B. Ver. Nat. Nassau, x, 31. Type *evanescens* Bohe. (type fig. in Reut. Act. Soc. Sci. Fenn., xiii, pt. 1, pl. 3, f. 9) = *Agalliastes* Fieber, 1858, Wien. Ent. Mon., *ii*, 321. Type *saltitans* (Fall). Type **marginatus** Curtis (= *saltitans* Fall.).

Genus 15.—**Spanagonicus** Berg., 1883, Ann. Soc. Cient. Argent., xvi, 78. (I have only seen reprint, p. 94). Type **provincialis** Berg.

Genus 16.—**Anonychia** Reuter, 1899, Ofv. Finsk. Vet. Förh., xlii, 134. Type **fokkeri** Reuter.

Genus 17.—**Aphaenophyes** Reuter. op. c., 135. Type **laticeps** Reuter.

Genus 18.—**Atomoscelis** Reuter, 1878, Act. Soc. Sci. Fenn., xiii, pt. 1, 67. Type **onustus** (Fieb.), Reut., pl. 4, f. 3 and pl. 1, f. 2.

Genus 19.—**Malacotes** Reuter, op. c., 69. Type **mulsanti** Reuter, pl. 4 f. 3, and pl. 1, f. 2.

Genus 20.—**Utopnia** Reuter, 1881, Berlin, Ent. Zeit., xxv, 185. Type **torquatus** (Puton), Reuter.

Genus 21.—**Agrametra** F. B. White, 1878, P. Z. S. Lond., 467 Type **aethi-** White, pl. 31, f. 2.

Genus 22.—**Dagbertus** Distant, 1904, Ann. Mag. N. H. (7), xiii, 203. Type **darwini** (Butler).

Genus 23.—**Compsonannus** Reuter, 1902, Ofv. Finsk. Vet. Förh., xliv, 63. **puncticornis** Reuter.

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[1] I have no means of finding out which of these is the earlier.

[2] A large heterogeneous subgenus, the type of which has apparently not been fixed so far.

Genus 24.—**Psallopsis** Reuter, 1901, op. c., xliii, 198. Type **femoralis** Reuter.

Genus 25.—**Moissonia** Reuter, 1894, Rev. Entom., xiii, 148 (type fig. in Reuter, Act. Soc. Sci. Fenn., xiii, pt. 1, pl. 8, f. 8). Type **punctatus** (Fieber).

Genus 26.—**Plagiognathus** Fieber, 1858, Wien. Ent. Mon., ii, 320 (type fig. H. S. Wanz. Ins., iii, f. 300). Type **arbustorum** (Fabr.).

Genus 27.—**Criocoris** Fieber, op. c., 319 = *Colpochilus* Reuter, 1875, Bih. Vet. Ak. Hand., iii, 60. Type *tenuicornis* Reuter (=*crassicornis* Hahn.). Type **crassicornis** (Hahn, Wanz. Ins., ii, f. 176), Fieber.

Genus 28.—**Laodomia** Kirkaldy, 1903, Wien. Ent. Zeit., xxii, 13 = *Strongylotes* Reuter, 1875, O. V. A. F., xxxii, 88. Type **satiens** Reuter.

Genus 29.—**Rhinacola** Reuter, l. c. Type **forticornis** Reuter.

Genus 30.—**Excentricus** Reuter, 1878, Act. Soc. Sci. Fenn., xiii, pt. 1, 89, pl. 1, f. 16*a* and pl. 5, f. 2. Type **punctipes** (Fieb.), Reuter, 1884.

Genus 31.—**Atractotomus** Fieber, 1858, Wien. Ent. Mon., ii, 317 (type fig. in Reuter, Act. Soc. Sci. Fenn., xiii, pt. 1, pl. 4, f. 2). Type **magnicornis** (Fall).

Genus 32.—**Aristoreuteria** n. n. = || *Episcopus* Reuter, 1875, O. V. A. F., xxxii, 90 (type fig. in Distant, B. C. A. Het., i, pl. 37, f. 18, under the name of *Lygus uvidus* !). Type **ornatus** Reuter.

Genus 33.—**Compsidolon** Reuter, 1899, Ofv. Finsk. Vet. Förh., xlii, 147. Type **elegantulum** Reuter.

Genus 34.—**Orthopidea** Reuter, op. c , 138. Type **fusciceps** Reuter.

Genus 35.—**Psallus** Fieber, 1858, Wien. Ent. Mon., ii, 321 (*salicis* Kirschbaum, fig. in Reuter, Act. Soc. Sci. Fenn., xiii, pt. 1, pl. 6, f. 7) = *Apocremnus* Fieber, op. c , 320 (type fig. in Reuter, op. c., pl. 7, f. 8). Type *ambiguus* (Fall.), = || *Liops* Fieber, 1870, Verh. Zool. bot. Ges. Wien., xx, 254. Type *puncticollis* Fieber, pl. 6, No. 11. Type **roseus** (Fabr.), Distant, 1904.

Genus 36.—**Lampethusa** Distant, 1884, B. C. A. Het., 1, 303. Type **anatina** Distant.

Genus 37.—**Auchus** Distant, 1893, op. c., 450 = *Auchas* Zool. Rec. for 1893, p. 335. Type **foliaceus** Distant, pl. 39, f. 18.

Genus 38.—**Eurotas** Distant, 1884, op. c , 302. Type **nodosus** Distant.

Genus 39.—**Plesiodema** Reuter, 1875, Bih. Vet. Ak. Handl., iii, 45. Type **pinetellus** (Zett.), Reuter.

Genus 40.—**Icodema** Reuter, l. c. (type fig. in Reuter, Act. Soc. Sci. Fenn., xiii, pt. 1, pl. 8, f. 6). Type **infuscatus** (Fieb.), Reuter.

Genus 41.—**Ethelastia** Reuter, 1876, Pet. nouv. Ent., ii, 34. Type **inconspicua** Reuter.

Genus 42.—**Rhinocapsus** Uhler, 1890, Tr. Md. Acad. Sci., i, 81. Type **vanduzeii** Uhler.

Genus 43.—**Phylidea** Reuter, 1899, Ofv. Finsk. Vet. Förh., xlii, 149. Type **femoralis** Reuter.

Genus **Phylus** Fieber, 1858, Wien. Ent. Mon. ii, 322 (type fig. in H.-S. Wanz. Ins., i, pl. 4, f. 16, as *pallipes*) = || *Gnostus* Fieber, l. c. = *Teratoscopus* Fieber, 1861, Eur. Hem., 315. Type *plagiatus* (H.-S., Wanz. Ins., vi, f. 587), Fieber. Type **coryli** (L.).

Genus 45.—**Brachyarthrum** Fieber, 1858, Wien. Ent. Mon , ii, 319 type fig. in Reuter, Act. Soc. Sci. Fenn., xiii, pt. 1, pl. 8, f. 5.) Type **limitatum** Fieber.

Genus 46.—**Byrsoptera** Spinola, 1837, Essai Hém., 191 (type fig. in Douglas & Scott, Brit. Hem., pl. ii, f. 6 as *caricis* Fieber) = *Leptomerocoris* Kirschbaum, 1855, Jahrb. Ver. Nat. Nassau, x, 31 (sep. ?). Type *rufifrons* (Fall) [3]= ‖ *Malthacus* Fieber, 1858, Wien. Ent. Mon, ii, 322. Type = ‖ *caricis* Fieb. [= *rufifrons* (Fall.)]. Type **erythrocephala** Spin. (= *rufifrons* Fall.).

Genus † 47.—**Harpocera** Curtis, 1838, Brit. Hem., 709. Type **burmeisteri** Curt., f. 709 (= *thoracicus* Fall.).

Genus 48.—**Ochrodema** Reuter, 1899, Ofv. Finsk. Vet. Förh., xlii, 132. Type **fusciloris** Reuter.

Genus 49.—**Chrysochnoodes** Reuter, 1901, op. c., xliii, 196. Type **vestitus** Reuter.

Genus 50.—**Leptidolon** Reuter, 1904, op. c., xlvii, No. 5, 14. Type **vittipenne** Reuter, pl. ? f. 7.

Tribe 2.—ONCOTYLINI.

Genus 1.—**Amblytylus** Fieber, 1858, Wien. Ent. Mon., ii, 325. Type **albidus** (Hahn, Wanz. Ins., ii, f. 162).

Genus 2.—**Macrotylus** Fieber, l. c. (type fig. in Reuter, Act. Soc. Sci. Fenn., xiii, pt. 2, pl. 1, f. 1) = *Mermimerus* J. Sahlberg, 1870, Not Faun Fenn., xi, 293. Type *cruciatus* (F. Sahlb.), J. Sahlb. Type **luniger** Fieber.

Genus 3.—**Alloeotarsus** Reuter, 1885, C. R. Soc. Ent. Belg., p. 47 (I have seen only separate copy, p. 5) = *Alloetomus* Atkinson, 1890, J. A. S. Bengal, lviii, pt. 2, 154 = *Alloetarsus* Atkinson, op. c., 183. Type **vitellinus** Reuter, fig.

Genus 4.—**Megalocoleus** Reuter, 1890, Rev. Ent. ix, 254 = ‖ *Macrocoleus* Fieber, 1858, Wien. Ent. Mon., ii, 325 (type fig. in Reuter, Act. Soc. Sci. Fenn., xiii, pt. 2, pl. 4, f. 1). Type **exsanguis** (H. S.).

Genus 5.—**Tinicephalus** Fieber, 1858, Wien. Ent. Mon., ii, 318. Type **discrepans** Fieber.

Genus 6.—**Hoplomachus** Fieber, op. c., 324 (type fig. in † Douglas & Scott, Brit. Hem., pl. 13, f. 1. Type **thunbergi** (Fall.), Reut.

Genus 7.—**Opisthotaenia** Reuter, 1901, Ofv. Finsk. Vet. Förh., xliii, 150. Type **fulvipes** Reuter.

Genus 8.—**Thermocoris** Puton, 1875, Pet. Nouv. Ent., i, 519 (type fig. in Reuter, Act. Soc. Sci. Fenn., xiii, pt. 2, pl. 1, f. 6). Type **munieri** Puton.

Genus 9.—**Roudairea** Puton & Reuter, 1886, Expl. Sci. Tunis. Hém. 21. Type **crassicornis** P. & R.

Genus 10.—**Pachyxyphus** Fieber, 1858, Wien. Ent. Mon., ii, 324 = *Pachyxiphus* Fieber, 1861, Eur. Hem., 316 (type fig. in Costa, Atti R. Inst. inc. Sci. Nat. Napoli (1852 ? 1855 ?), pl. 3, f. 7 as *Phytocoris coroniceps*). Type *lineellus* (!). Type **lineellus** (Muls. Rey), Fieber.

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[3] This was a subgenus of 38 species, type apparently previously not fixed.

Genus 11.—**Phoenicocapsus** Reuter, 1876, Pet. nouv. Ent., ii, 54. Type **regina** Reuter.

Genus 12.—**Pronototropis** Reuter, 1879, Act. Soc. Sci. Fenn., xiii, pt. 2, 248. Type **punctipennis** (Fieb.), Reuter, pl. 1, f. 8.

Genus 13.—**Cylloceps** Uhler, 1893, P. Z. S. Lond., 711. Type **pellicia** Uhler.

Genus 14.—**Placochilus** Fieber, 1858, Wien. Ent. Mon., ii, 324 (type fig. in H. S. Wanz. Ins., vi, f. 590). Type **seladonicus** (Fall.), Fieber.

Genus 15.—**Vorruchia** Reuter, 1879, Act. Soc. Sci. Fenn., xiii, pt. 2, 252. Type **vittigera** Reuter, pl. 1, f. 10.

Genus 16.—**Malthacosma** Reuter, op. c., 253. Type **punctipennis** Reut., pl. 1, f. 11.

Genus 17.—**Solenoxyphus** Reuter, 1875, Bih. Vet. Ak. Handl., iii, 38 (type fig. Reuter, Act. Soc. Sci. Fenn., xiii, pt. 2, pl. 4, f. 6, and 1, f. 12a). Type **crassiceps** Reuter (=*fuscovenosus* Fieber).

Genus 18.—**Leucopterum** Reuter, 1880, Act. Soc. Sci., Fenn., xiii, pt. 2, 259. Type **fasciatum** Reuter, pl. 5, f. 2, and 1, f. 13.

Genus 19.—† **Hadrophyes** Puton, 1874, A. S. E. F. (5), iv, 220. Type **sulphurella** Puton, pl. vii, f. 4.

Genus 20.—**Xenocoris** Fieber, 1858, Wien. Ent. Mon., ii, 315 (type fig. in Reuter, Act. Soc. Sci. Fenn., xiii, pt. 2, pl. 1, f. 16, a–c) = *Conostethus* Fieber, op. c., 318 (type fig. in Reuter, op. c., pl. 4. f. 7). Type *roseus* (Fall.), Fieb. Type **venustus** Fieber.

Genus 21.—**Stenoparia** Fieber, 1870, Verh. zool. bot. Ges. Wien., xx, 255. Type **putoni** Fieber, pl. vi, f. 12.

Genus 22.—**Pastocoris** Reuter, 1879, Act. Soc. Sci. Fenn., xiii, pt. 2, 271. Type **putoni** (Reut.), Reut., pl 1, f. 18.

Genus 23.—**Acrotelus** Reuter, 1885, C. R. Soc. Ent. Belg., p. 46 (I have seen only separate copy, p. 4 !). Type **loewi** Reuter, fig.

Genus 24.—**Alloeonycha** Reuter, 1904, Ofv. Finsk. Vet. Förh., xlvi, No. 14, p. 8 (sep. ?). Type **mayri** Reuter.

Genus 25.—**Enderon** Puton, 1888, Rev. Ent., vii, 106 = *Euderon* Zool. Rec. for 1888. Type **martini** Puton.

Genus 26.—**Oncotylus** Fieber, 1858, Wien. Ent. Mon., ii, 318 (type fig. as *punctipes* in Reut., Act. Soc. Sci. Fenn., xiii, pt. 2, pl. 5, f. 4) = *Anoterops* Fieber, 1860, Eur. Hem., 72 = *Cylindromelus* Fieber, 1861, op. c., 393. Type *setulosus* (H. S., Wanz. Ins., iv, f. 380), Fieber. Type ‖ **tanaceti** Fieb. (= *punctipes* Reuter).

Genus 27.—**Eurycolpus** Reuter, 1879, Act. Soc. Sci. Fenn., xiii, pt. 2, 284. Type **flaveolus** (Stål), Reuter, pl. 1, f. 20.

Genus 28.—**Onychumenus** Reuter, op. c., 286. Type **decolor** (Fall.), Reuter, pl. 1, f. 21.

Genus 29.—**Atomophora** Reuter, op. c., 287. Type **pantherina** Reuter,* pl. 1, f. 14, a–d.

Tribe 3.—NASOCORINI.

Genus 1.—**Nasocoris** Reuter, 1879, Ofv. Finsk. Soc. Förh., xxi, 65 (type fig. Reuter, Act. Soc. Sci. Fenn., xiii, pt. 3, pl. 1, f. 1). Type **argyrotrichus** Reuter.

Tribe 4.—HETEROTOMINI.

(=*Cyllocoraria* Reuter.)

Genus 1.—**Platycranus** Fieber. 1870, Verh. Zool. bot. Ges. Wien., xx, 252 (type figure in Reuter, Act. Soc. Sci. Fenn., xiii, pt. 3, pl. 1, f. 2). Type **erberii** Fieber.

Genus 2.—**Brachynotocoris** Reuter, 1880, Ofv. Finsk, Vet. Förh., xxii, 22 (type figured in Reuter, Act. Soc. Sci. Fenn., pt. 3, pl. 1, f. 1a–c . Type **puncticornis** Reuter.

Genus 3.—**Reuteria** Puton, 1875, Pet. Nouv. Ent., i, 519. Type **marquetii** Puton.

Genus 4.—**Malacocoris** Fieber, 1858, Wien. Ent. Mon., ii (type fig. in † Douglas & Scott, Brit. Hem., pl. 2, f. 7). Type **chlorizana** Panz. , Fieber.

Genus 5.—**Heterocordylus** Fieber, op. c., 316 (type fig. in Reuter, Act. Soc. Sci. Fenn., xiii, pt. 3, pl. 4, f. 9) = *Bothrocranum* Reuter, 1876. Pet. nouv. Ent., ii, 54 (type fig. † in Reut., Act. Soc. Sci. Fenn., xiii, pt. 3, pl. 5, f. 3. Type *freyii* Reut. (= *erythrophthalmus* Hahn). Type **tumidicornis** (Kirschbaum).

Genus 6.—**Sthenaridea** Reuter, 1884, Ent. Tijdschr., v, 197 (type fig. in Distant, Faun. Brit. Ind. Rh., ii, f. 306). Type **pusilla** Reut.

Genus 7.—**Platytomatocoris** Reuter, 1884, Act. Soc. Sci. Fenn., xiii, pt. 3, 334. Type **planicornis** (H. S., Wanz. Ins., iii, f. 306), Reuter.

Genus 8.—**Heterotome** Latreille, 1825, Fam. Nat , 422 = *Heterotoma* Lepeletier & Serville, 1825, Enc. Méth., x = *Heterotomus* Westwood, 1840 ? Introd. Mod. Class. Ins., ii, 479 (type fig. in Reuter, Act. Soc. Fenn., xiii, pt. 3, pl. 5, f. 28). Type **spissicornis** (Fabr.), Latr. (= *merioptera* Scopoli.

Genus 9.—**Pseudoloxops** Kirkaldy, 1905, Wien. Ent. Zeit., xxiv, 268 = || *Loxops* Fieber, 1858, Wien. Ent. Mon., ii, 314. Type **coccineus** (Meyer, Verz. Schw. Rh., i, pl. 4, 4, 5) = *coccinata* Kirkaldy.

Genus 10.—**Diommatus** Uhler, 1887, Ent. Amer., 32. Type **congrex** Uhl.

Genus 11.—**Ceratocapsus** Reuter, 1875, O. V. A. F., xxxii, 87. Type **lutescens** Reuter.

Genus 12.—**Ilnacora** Reuter, op. c., 85. Type **divisa** Reuter.

Subg. 1.—CORINALA Reuter, op. c. Type stalii Reuter.

Genus 13.—**Litoxenus** Reuter, 1885, C. R. Soc. Ent. Belg., p. 45 (I have seen only separate copy, p. 3 ! !). Type **tenellus** Reut., fig.†

Genus 14.—**Pachylops** Fieber, 1860, Eur. Hem., 70 (type fig. † in Douglas & Scott, Ent. Mo. Mag., iv, pl. 2, f. 3) = *Hypsitylus* Fieber, 1861, Eur. Hem., 286 (type fig. in Reuter, Act. Soc. Sci. Fenn., xiii, pt. 3, pl. 1, f. 6). Type *prasinus* Fieber. Type || **chloropterus** Fieb. (= *bicolor* D. & S.).

Genus 15.—**Tichorinus** Fieber, 1858, Wien. Ent. Mon., ii, 314 (type fig. in Hahn, Wanz. Ins., iii, f. 233 as *prasinus*) = *Orthotylus* Fieber, op. c., 315. Type *nassatus* (Fabr.)* = *Litocoris* Fieber, 1860, Eur. Hem., 70. Type *ericetorum* (Fall.), Fieber = † *Litosoma* Douglas & Scott, Brit. Hem., 334. Type *marginalis* D. & S., pl. 11, f. 3 † = || † *Allocotus* Fieber & Puton, 1874, A. S. E. F. (5), iv, 218 = *Halocapsus* Puton, 1878, B. S. E. F. (5), viii, p. 33. Type *rubidus* Puton, pl. 7, f. 2 † = *Melanotrichus* Reuter, 1875, Bih. Vet. Ak. Handl., iii, 35. Type *flavosparsus* (C. Sahlb.).† Type **ericetorum** (Fall), Fieber.

Genus 16.—**Koanoa** Kirkaldy, 1902, Faun. Hawaii., iii, 136. Type **hawaiiensis** Kirkaldy.

Genus 17.—**Parthenicus** Reuter, 1875, O. V. A. F., xxxii, 84. Type **psalliodes** Reuter.

Genus 18.—**Amixia** Reuter, 1883, Act. Soc. Sci. Fenn., xiii, 377. Type **longiceps** Reuter, pt. 3, pl. 1, f. 9, a–c.†

Genus 19.—**Paramixia** Reuter, 1900, Ofv. Finsk. Vet. Förh., xlii, 264. Type **suturalis** Reuter.

Genus 20.—**Microtechnites** Berg., 1893, An. Cient. Arg., xvi, 73 (I have seen only separate p. 89). Type **pygmaeus** (Berg), Berg.

Genus 21.—**Cyrtorhinus** Fieber, 1858, Wien. Ent. Mon., ii, 313 = *Cyrtorrhinus* Reuter, 1883, Act. Soc. Sci. Fenn., xiii, 379 = *Tytthus* Fieber, 1864, Wien. Ent. Mon., viii, 82, pl. 2, f. X.† Type *geminus* (Flor), Fieber = || *Periscopus* Breddin, 1896, Deutsch. Ent. Zeit., 106 = *Breddiniessa* Kirkaldy, 1903, Wien. Ent. Zeit., xxii, 13. Type *mundulus* Breddin. Type || **elegantulus** (Meyer, Verz. Schweiz. Rhynch., pl. 5, f. 2), Fieber (= *caricis* Fall.).

Genus 22.—**Mecomma** Fieber, 1858, Wien. Ent. Mon., ii, 313 = *Sphyracephalus* † Douglas & Scott, 1865, Brit. Hem., 349 = *Sphyrops* Douglas & Scott, 1866, Ent. Mo. Mag., iii, 16 (type fig. in Reuter, Act. Soc. Sci. Fenn., xiii, pt. 3, pl. 1, f 11). Type *ambulans* (Fall.), D. & S. Type **ambulans** (Fall.), Fieber.

Genus 23.—**Globiceps** Lep. Serv., 1825, Enc. Méth., x, 326 (type fig. in Hahn Wanz. Ins., iii, f. 265 as *bifasciatus*). Type **capito** Lep. Serv. (= *sphaegiformis* Rossi).

Genus 24.—**Blepharidopterus** Kolenati, 1845, Bull. Soc. Nat. Moscou (sep. ?), 101 = *Haetorhinus* Fieber, 1858, Wien. Ent. Mon., ii, 313 = *Aetorhinus* Fieber, 1860, Eur. Hem., 70 = *Aetorrhinus* Atkinson. 1890, J. A. S. Bengal, lviii, pt. 2, Suppl. p. 133 (type fig. in H. S. Wanz. Ins., iii, f. 292). Type **angulatus** (Fall.), Kol.

Genus 25.—**Trilaccus** Horváth, 1902, Term. Füz., xxv, 610. Type **nigroruber** Horv.

Genus 26—**Chlorosomella** Reuter, 1904, Ofv. Finsk. Vet. Förh., xlvi, No. 10, 6 (sep. ?). Type **geniculata** Reuter.

Genus 27.—**Diaphnidia** Uhler, 1895, Bull. Col. Exp. Sta., 31, 43. Type **debilis** Uhler.

Genus 28.—**Zanchisme** Kirkaldy, 1904, Entom., xxxvii, 280 = || *Schizonotus* Reuter, 1892, A. S. E. F., lxi, 401. Type **dromedarius** Reuter.

Genus 29.—**Teleorhinus** Uhler, 1890, Tr. Md. Soc., i, 74. Type **cyaneus** Uhler.

Genus 30.—**Ectopiocerus** Uhler, l. c. Type **anthracinus** Uhler.

Genus 31.—**Coquillettia** Uhler, op. c., 78 (*mimetica* Osborn, fig. in Proc. Iowa Ac. Sci., v, 237, f. 15 (I have seen only sep. paged copy, p. 13). Type **insignis** Uhler.

Genus 32.—**Closterocoris** Uhler, op. c. Type **ornata** Uhler.

Genus 33.—**Cyllecoris** Hahn, 1834, Wanz. Ins., ii, 97 = *Cyllocoris* Spinola, 1837, Essai, 188 = *Kelidocoris* Kolenati, 1845, Bull. Soc. Nat. Moscou (sep. ?), 101. Type *histrionicus* L. Type **agilis** (Hahn, f. 18 †), Westwood, 1839 (= *histrionicus* L.).

Subg. 1.—CAMAROCYPHUS Reuter. 1880, Ofv. Finsk. Vet. Förh., xxii, 21. Type **nigrogularis** Reut. (= *luteus* H. S., Wanz. Ins., iii, f. 297).

Subg. 2.—DRYOPHILOCORIS Reuter, 1875, Bih. Vet. Ak. Handl., iii, 30 (type fig. in Hahn. Wanz. Ins., *iii*, f. 235 as *flavonotatus*). Type **flavoquadrimaculatus** (de Geer), Reuter.

Subg. 3.—MIMOPERIDERIS Kirkaldy n. n. = ‖ *Perideris* Fieber, 1870, Verh. Zool. bot. Ges. Wien., xx, 249. Type **marginatus** Fieber, pl. 5, f. 6. †

Tribe 5.—CAMPYLONEURINI

(= *Dicypharia* Reuter = *Capsaria* pt. Distant.)

Genus 1.—**Sthenarops** Uhler, 1877, Bull. U. S. Geol. Surv., iii, 418. Type **chloris** Uhl.

Genus 2.—**Hyaliodes** Reuter, 1875, O. V. A. F., xxxii, 83 (type fig. in Glover Ill. Ins. Hem., pl. 7, f. 18.) Type **vitripennis** (Say), Reuter.

Genus 3.—**Engytatus** Reuter, op. c., 82 = *Neoproba* Distant, 1883, B. C. A. Het., i, 270. Type *rubescens* Distant, pl. 26, f. 6.† Type **geniculatus** Reuter.

Genus 4.—**Campyloneura** Fieber, 1860, Eur. Hem., 67 = ‖ *Camptoneura* Fieber, 1858, Wien. Ent. Mon., ii, 309 (type fig. in H. S. Wanz. Ins., iii, f 268†). Type **virgula** (H. S.), Fieb. (= *pulchellus* Guér.).

Genus 5.—**Nesidiocoris** Kirkaldy, 1902, T. E. S. London, 247. Type **volucer** Kirkaldy.

Genus 6.—**Ætorhinella** Noualhier, 1893, A. S. E. F., 16. Type **parviceps** Noualh.

Genus 7.—**Brachyceroea** Fieber, 1858, Wien. Ent. Mon.. ii, 327 = *Brachyceraea* Fieber, 1860, Eur. Hem. 77 (type fig. in Reut. Act. Soc. Fenn., xiii, pt. 3, pl. 2, f. 7 = *Dicyphus* Fieber, 1858, Wien. Ent. Mon. ii, 327 (type fig. in Reuter, op. c., pl. 3, f. 3. Type *pallidus* (H. S.). † = † *Idolocoris* Douglas & Scott, 1865, Brit. Hem., 380. Type *pallicornis* D. & S., pl. 12, f. 5. † Type **annulatus** (Wolff).

Genus 8.—**Cyrtopeltis** Fieber, 1860, Eur. Hem., 76 (type fig. in Reuter. Act. Soc. Sci. Fenn., xiii, pt. 3, pl. 4, f. 1). Type **geniculata** Fieber.

Genus 9.—**Macrolophus** Fieber, 1858, Wien. Ent. Mon., ii, 326 (type fig. in Reuter, op. c., pl. 4, f. 3). Type **nubilus** (H. S.).

Genus 10.—**Annona** Distant, 1884, B. C. A. Het., ii, 297 = ‖ *Ania* Distant, op. c., 289. Type **bimaculata** Dist., pl. 27, f. 25.†

Tribe 6.—CREMNORRHINI.

Genus 1.—**Cremnorrhinus** Reuter, 1880, Ofv. Finsk. Vet. Förh., xxii, 15 (type fig. on Reuter, Hem. Gymn. Eur., iv, pl. 1, f. 3.[4]† Type **basalis** Reuter.

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[4] This was probably published in the Act. Soc. Sci. Fenn., but there are no indications in the work itself that it is not a purely separate publication, and I can find no explanation in the "Zoological Record" or "Bericht der Entomologie."

Genus 2.—**Platypsallus** J. Sahlberg, 1870, Not. Faun. Fenn., xiv, 308 (type fig. in Reuter, 1875, Act. Soc. Faun. Fenn., i, pl. 1, f. 15 and 15a.[5] Type **acanthioides** (J. Sahlberg).

Tribe 7.—BOOPIDOCORINI.

Genus 1.—**Boopidocoris** Reuter, 1879, Ofv. Finsk. Vet. Förh., xxi, 62 (type fig. in Reuter, Hem Gymn. Eur., iv, pl. 1, f. 1 †). Type **vitticollis** Reuter.

Tribe 8.—CAMPTOTYLINI (= *Exaeretaria* Reuter, 1883 = *Camptotylaria*, Reuter, 1891).[6]

Genus 1.—**Camptotylus** Fieber, 1860, Eur. Hem., 70 (type fig. in Reuter, op. c, pl. 2, f. 1) = *Megalobasis* Reuter, 1979, Ofv. Finsk. Vet. Förh., xxi, 65.[7] Type *bipunctatus* Reuter. Type **yersini** (Muls.), Fieber.

Subg. 1.—EXAERETUS Fieber, 1864, Wien. Ent. Mon., ii, 81 (type fig. in Reuter, Hem. Gymn. Eur., iv, pl. 2, f. 2). Type **myeri** (Frey), Fieber.

Tribe 9.—HALTICINI (= *Laboparia* Reuter).

Genus 1.—**Halticus** Hahn, 1832, Wanz. Ins., i, 113 = *Miris* Laporte, 1831 (nec Fabricius). Type *luteicollis* (Panz.), Lap. = ‖ *Eurycephala* Brullé, 1835, Hist. Ins., 410. Type *aptera* (L.), Brullé, pl. 33, f. 6 † = *Halticocoris* Douglas & Scott, 1865, Brit. Hem., 478. Type *pallicornis* (F.) D. & S. Type **pallicornis** (Fabr.), Hahn, pl. 18, f. 61 (= *aptera* Linn.).

Genus 2.—**Nesidiorchestes** Kirkaldy, 1902, Fauna Hawaii., iii, 139 Type **hawaiiensis** Kirk., pl. 4, figs. 15 and 16.†

Genus 3.—**Coridromius** Signoret, 1862, Bull. S. E. F. (4), ii, p. 5 = ‖ *Ocypus* Montrouzier, 1861, A. S. E. F. (4), i, 67. Type **variegatus** Montr.

Genus 4.—**Halticidea** Reuter, 1901, Ofv. Finsk. Vet. Förh., xliii, 172. Type **punctulata** Reuter.

Genus 5.—**Strongylocoris** Blanchard, 1840, Hist. Nat. Ins., iii, 140 (type fig. in Hahn Wanz. Ins., ii, f. 174) = *Stiphrosomus* Fieber, 1858, Wien. Ent. Mon., ii, 312 = *Stiphrosoma* Fieber, 1860, Eur. Hem., 69. Type *leucocephalus* (L.). Type **leucocephalus** (L.), Blanch.

Genus 6.—**Tenthecoris** Scott, 1886, Ent. Mo. Mag., xxiii, 65. Type **bicolor** Scott.

Genus 7.—**Piezocranum** Horváth, 1877, Termész. füzet. i, 92 (type fig. in Reuter, Hem. Gymn. Euro., iv, pl. 1, f. 7) = *Lamprella* Reuter, 1891, Hem. Gymn. Eur., iv, 35. Type *punctatipennis* (Reuter), Reuter, pl. 1, f. 8 † (= *simulans* Horv.). Type **simulans** Horv.

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[5] Not "Rev. Crit. Caps." as Atkinson cites. This lamented author has apparently confused two publications of Reuter, viz.: (1) "Rev. Crit. Caps.," pp. 1-101, and 1-190, and (2) "Hem. Gymn. Scand., pt. 1," in Act. Soc. Faun. Fenn., i, pp 1-260, pl. 1.

[6] The title page of the "Hem. Gymn. Eur., iv," is dated MDCCCLXLI, which I regret I cannot understand. The "Zoological Record" and "Bericht" date it 1891.

[7] Atkinson and Reuter (Hem. Gymn.) quote p. 205. My copy, which bears no signs of being a reprint, states "65."

Genus 8.—**Bertsa** Kirkaldy, 1904, Entom., xxxvii, 280 = ‖ *Berta* Kirkaldy. 1902, J. Bombay N. H. Soc., xiv, 57, pl. A, f. 7. pl. B, f. 5†. Type **laukauus** (Kirby), Kirkaldy.

Genus 9.—**Pachytomella** Reuter, 1890, Rev. Ent., ix, 253 = ‖ *Pachytoma* Costa, 1841, A. S. E. F., x, 288. Type **minor** Costa, pl. 6, f. 4a† (= *passerinii* Costa).

Genus 10.—**Orthocephalus** Fieber, 1858, Wien. Ent. Mon., ii, 316 (type fig. in Reut., Hem. Gymn. Eur., iv, pl. 3, f. 5). Type **brevis** Panz.).

Genus 11.—**Euryopocoris** Reuter, 1875, Bih. Vet. Ak. Handl., iii, 24 = *Euryopicoris* Atkinson, 1890, J. A S. Bengal, lviii, pt. 2, suppl., 122 (type fig. in Reuter, Hem. Gymn. Eur., iv, pl. 2, f. 4). Type **nitidus** (Meyer), Reuter.

Genus 12.—**Platyporus** Reuter, 1900, Rev. Ent., ix, 246 (type fig. in Reuter, Hem. Gymn. Eur., iv, pl. 1, f. 12. Type **dorsalis** Reuter.

Genus 13.—**Schoenocoris** Reuter, 1891, Hem. Gymn. Eur., iv, 64. Type **flavomarginatus** (Costa A. S. E. F., x, pl. 6, f. 3a†), Reuter.

Genus 14.—**Scirtetellus** Reut., 1891, Hem. Gymn. Eur., iv, 67=*Sartetellus* (!) Zool. Rec. for 1890. Type **brevipennis** (Reut.), Reut., pl. 1, f. 14.†

Genus 15.—**Anapus** Ståi, 1858, Stett. Ent. Zeit., 188 = *Merotrichaea* Reuter, 1875, Bih. Vet. Handl., iii, 24. Type *freyi* (Fieb.). Type **kirschbaumi** Stål, pl. 1, f. 2, a, b.†

Genus 16.—**Labops** Burmeister, 1835, Handb. Ent., ii, 279 (type fig. in Reuter, op. c., pl. 2, f. 6). Type **diopsis** Burm. (=*sahlbergi* Fall.).

Genus 17.—**Hesperolabops** Kirkaldy, 1902, T. E. S. London, 249. Type **gelastops** Kirkaldy, pl. v, f. 2†.

Genus 18.—**Misilla** Horváth, 1898, Rev. Ent., xvii, 154. Type **flavipes** Horv.

Genus 19.—**Dimorphocoris** Reuter, 1891, Hem. Gymn. Eur., iv, 83. Type **signatus** (Fieber), Reuter, pl. 2, figs. 8 and 9.

Genus 20.—**Plagiotylus** Scott, 1874, Ent. Mo. Mag., x, 272 (type fig. in Reut., op. c., pl. 2, f. 3). Type **maculatus** Scott.

Genus 21.—**Hyoidea** Reuter, 1876, Pet. nouv. Ent., ii, 34 (type fig in Reuter, Hem. Gymn. Eur., iv, pl. 1, f. 19†). Type **notaticeps** Reuter.

Genus 22.—**Oraniella** Reuter, 1894, Rev. Ent., xiii, 138. Type **tibialis** Reuter.[8]

Genus 23.—**Smicromerus** Reuter, 1901, Ofv. Finsk. Vet. Förh., xliii, 206. Type **saltans** Reuter.

Genus 24.—**Dasyscytus** Fieber, 1864, Wien. Ent. Mon., viii, 84 = *Dasoscytus* Atkinson, J. A. S. Bengal, lviii, pt. 2, suppl., 126. Type **sordidus** Fieber, pl. 2, f. 11.†

Genus 25.—**Labopidea** Uhler, 1877, Bull. U. S. Geol. Surv., iii, 415. Type **chloriza** Uhler.

Genus 26.—**Semium** Reut., 1875, O. V. A. F., xxxii, 80. Type **hirtum** Reut.

Genus 27.—**Bolteria** Uhler, 1887, Ent. Amer., iii, 33. Type **amicta** Uhler.

Genus 28.—**Nanniella** Reuter, 1904, Ofv. Finsk. Vet. Förh., xlvi, No. 10, p. 5 (separate ?). Type **chalybea** Reuter.

Genus 29.—**Bilia** Distant, 1904, Faun. Brit. Ind. Rh., ii, 480. Type **fracta** Distant, fig. 313.†

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[8] I must have overlooked this genus and species in Reuter's works, for I can find no reference to them.

Genus 30.—**Opuna** Kirkaldy, 1902, Faun. Hawaii., iii, 140, pl. 5, f. 29. Type **hawaiiensis** Kirkaldy.

Genus 31.—**Pseudoclerada** Kirkaldy, l. c., pl. 4, figs. 18–20.† Type **morai** Kirkaldy.

Genus 32.—**Guianerius** Distant, 1903, Fascic. Malay, i, 268.[9] Type **typicus** Distant, pl. 16, f, 10.†

Tribe 10.—HYPSELOECINI.

Genus 1.—**Hypseloecus** Reut., 1891, Wien. Ent. Zeit., x, 49 (type fig. in Reut., Hem. Gymn. Eur., iv, pl. 1, f. 20). Type **visci** (Puton), Reuter.

Tribe 11.—MYRMECOPHYINI (= *Diplacaria* Reuter, 1893 = *Myrmecophyaria* Reuter, later).

Genus 1.—**Myrmecophyes** Fieber, 1870, Verh. Zool. bot. Ges. Wien., xx, 253 = ‖ *Diplacus* Stål, 1858, Stett. Ent. Zeit, xix, 183. Type *alboornatus* Stål, pl. 1, f. 3.† Type **oschanini** Fieb., pl. 6, f. 10 (= *alboornatus* Stål).

Tribe 12.—PILOPHORINI (= *Camaronotaria* Kirkaldy, 1902).

Genus 1.—**Cremnocephalus** Fieber, 1860, Eur. Hem., 63 = ‖ *Cremnodes* Fieber, 1858, Wien. Ent. Mon., ii, 303 (type fig. in Reuter, Hem. Gymn. Eur., iv, pl. 6, f. 1). Type ‖ **umbratilis** (Fabr.), Fieber = *albolineatus* Reuter.

Genus 2.—**Pilophorus** Westwood, 1839, Syn. Brit. Ins., 121[10] (type fig. in Reuter, op. c., pl. 6, f. 3) = *Camaronotus* Fieber, 1858, Wien. Ent. Mon., ii. Type *clavatus* (Fabr.), Fieb. (=Linn.). Type **clavatus** (L.), Westw.

Genus 3.—**Pamillia** Uhler, 1887, Ent. Amer., iii, 31. Type **behrensi** Uhler.

Genus 4.—**Mimocoris** Scott, 1872, Ent. Mo. Mag., viii, 195. Type **camaranotoides** (sic !) Scott (=*coarctatus* M. & R.).

Genus 5.—**Dacerla** Signoret, 1887, Bull. S. E. F., p. 157 = ‖ *Myrmecopsis* Uhl., 1894, P. Cal. Ac. Sci., (2), iv, 276. Type *inflatus* Uhler. Type **inflatus** (Uhler), Bergroth, 1897.

Genus 6.—**Tylopeltis** Reuter, 1904, Ofv. Finsk. Vet. Förh., xlvi, No. ? p. 4 (separate ?).[11] Type **albosignata** Reuter.

Genus 7.—**Lamprocranum** Reuter, 1891, Rev. Ent., x, 134. Type **unguiculare** Reuter.

Genus 8.—**Sericophanes** Reuter, 1875, O. V. A. F., xxxii, 79 (type fig in Osborn, 1898, P. Iowa Ac. Sci., v †, p. 239, f. 16 (sep. p. 16 !). Type **ocellatus** Reuter.

Genus 9.—**Myrmicomimus** Reuter, 1881, Berlin Ent. Zeit., xxv, 178=*Myrmecomimus* Atkinson, 1890, J. A. S. Bengal, lviii, pt. 2, suppl., 115. Type **variegatus** Costa (Atti R. inst. incorr. sci. nat. Napoli ii, pl. f. 10), Reuter.

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[9] This, though placed by Distant in the *Capsaria*, seems allied to *Bertsa*.

[10] This genus was only indicated, not described in 1826, Hahn, Icon. Cimic., p. 23.

[11] I regret quoting so many of Reuter's 1904 genera as "(sep. !)," but the fault lies with the careless redaction of the Society's publications.

Genus 10.—† **Myrmecopeplus** Berg, An. Soc. Cient. Arg., xvi, 27 (sep. p. 84 !). Type **ornatus** (Berg), Berg.

Genus 11.—† **Myrmecozelotes** Berg, op. c., 30 sep. p. 87 ! . Type **lynchii** Berg.

Genus 12.—**Lissocapsus** Bergroth, 1903, Wien. Ent. Zeit., xxii, 225. Type **wasmanni** Bergr.

Genus 13.—**Systellonotus** Fieber, 1858, Wien. Ent. Mon., ii, 326 type fig. in Reut., Hem. Gymn. Eur., iv, pl. 4, f. 5. Type **triguttatus** (L.), Fieber.

Genus 14.—**Cyrtopeltocoris** Reuter, 1875, O. V. A. F., xxxii, 51 Type **albofasciatus** Reuter.

Genus 15.—**Diocoris** Kirkaldy, 1902, Tr. E. S. London, 246. Type **agelastus** Kirkaldy.

Genus 16.—**Laemocoris** Yakovlev and Reuter, 1879, Ofv. Finsk. Vet. Forh., xxi, 183 (type fig. in Reuter, Hem. Gymn. Eur., iv, pl. 1. f. 27c). Type **reuteri** Yakovlev and Reuter.

Genus 17.—**Acrorrhinium** Noualhier, 1895, Rev. Ent., xiv, 175. Type **conspersum** Noualh.

Genus 18.—**Omphalonotus** Reuter, 1876, Pet. nouv. Ent., ii, 27 (type fig. in Reuter, Hem. Gymn. Eur., iv, pl. 1, f. 28). Type **quadriguttatus** (Kirschbaum), Reuter.

Genus 19.—**Hallodapus** Fieber, 1860, Eur. Hem., 66 = *Allodapus* Fieb. 1861, op. c., 262 = † *Eroticoris* Douglas and Scott, 1865, Brit. Hem., 471. Type **coryzoides** (H. S., Wanz. Inz., iv, f. 837†), Fieber.

Genus 20.—**Tiryus** Kirkaldy, 1903, Wien. Ent. Zeit., xxii, 14 = || *Trichia* Reuter, 1875, O. V. A. F., xxxi, 81. Type **punctulata** Reuter.

Genus 21.—**Plagiorhamma** Fieber, 1870, Verh. Zool. bot. Ges. Wien = *Plagiorrhama* Reuter, 1891, Hem. Gymn. Eur., iv, 139. Type **suturalis** (H. S., Wanz. Ins., iv, f. 383†), Fieber.

Genus 22.—**Fulgentius** Distant, 1904, Ann. Mag. N. H. (7), xiii, 103. Type **mandarinus** Distant.

Genus 23.—**Nichomachus** Distant, op. c., 104. Type **sloggetti** Distant.

Genus 24.—**Hekista** Kirkaldy, 1902, Tr. E. S. London, 248. Type **laudator** Kirkaldy, pl. 6, f. 4.†

Genus 25.—**Orectoderus** Uhler, 1876, Bull. U. S. Geol. Surv., ii, 319 (type fig. in Kirkaldy, op. c., pl. 6, figs. 1, 2, 5 and 23). Type **obliquus** Uhler, pl. 20, f. 19.†

Genus 26.—**Xenetus** Distant, 1883, B. C. A. Het., i, 239. pl. xxiv. f. 3.† Type **lanuginosus** Distant.

Genus 27.—**Zacinthus** Distant, 1884. op. c., 297 = || *Zacorus* Distant, 1883, op. c., 240. Type **staphyliniformis** Distant pl. 24, f. 5.†

Genus 28.—**Zosippus** Distant, 1883, op. c., 241. Type **inhonestus** Distant, pl. 24, f. 6.†

Genus 29.—**Trachelonotus** Reuter, 1904, Ann. Mus. Zool. Peterb., ix, 8 (sep. ?). Type **albofasciatus** Reuter.

Genus 30.—**Armachanus** Distant, 1904, Faun. Brit. Ind. Rh., ii, 478. Type **monoceros** Distant, f. 311.†

Genus 31.—**Aspidacanthus** Reuter, 1901, Ofv. Finsk. Vet. Förh., xliii, 169. Type **myrmecoides** Reuter.

Tribe 13.—CYLAPINI = *Cylaparia* Kirkaldy, 1903 = *Eucerocoraria* Kirkaldy, 1902 = *Monalonionaria* Reuter, 1892 = *Valdasaria* Distant, 1883)

Genus 1.—**Cylapus** Say, 1832, Desc. Het. Hem. N. Am. (New Harmony), p. ? (p. 347, LeConte ed., vol. 1 , (type fig. in Heidemann, P. E. S. Wash., ii, 69, tf. 4) = *Valdasus* Stål (1860 ?), K. Svensk. Vet. Ak. Handl., (2), vii, 56. Type **schonherri** Stål.

Genus 2.—**Jobertus** Distant, 1893, B. C. A. Het., i, 421. Type **chryselectus** Distant, pl. xxxvi, f. 16.†

Genus 3.—**Piasus** Distant, 1883, op. c., 242. Type **illuminatus** Distant, pl. 24, f. 17.†

Genus 4.—**Vannius** Distant, 1883, o. c., 245. Type **rubrovittatus** Dist., pl. 24, f. 11.†

Genus 5.—**Eucerocoris** Westwood, 1837, T. E. S. London, ii, 21. Type **nigriceps** Westwood, pl. 2, f. 7.†

Genus 6. **Monalonion** Herr. Schäff., 1850, Wanz. Ins., ix, 168. Type **parviventre** H. S., f. 958.†

Genus 7.—**Sinervus** Stål (1860 ?), K. Svensk. Vet. Ak. Handl. (2), vii, 56. Type **bärensprungi** Stål.

Genus 8.—**Arculanus** Distant, 1904, Ann. Mag. H. H. (7), xiii, 198. Type **marshalli** Distant.

Genus 9.—**Disphinctus** Stål., 1870, O. V. A. F., xxvii, 668. Type **sahlbergi** Stål, Kirkaldy, 1902.[12]

Genus 10.—**Pachypeltis** Signoret, 1858, A. S. E. F. (3), viii, 501. Type **chinensis** Signoret.

Genus 11.—**Helopeltis** Signoret, op. c., 502 = † *Aspicelus* Costa, 1865, Ann. Mus. Zool. Nap., ii, 147. Type *podagricus* Costa, pl. 2, f. 6.† Type **antonii** Signoret, pl. 12, pt. 2. f. 2.†

Genus 12.—**Felisacus** Distant, 1904, Faun. Brit. Ind., ii, 438 = || *Liocoris* Motschulsky, 1863, Bull. Soc. Imp N. Moscou, xxxvi, pt. 2, 87. Type **glabratus** (Motsch., pl. 2, f. 20). Dist †

Genus 13.—**Hyaloscytus** Reuter, 1904, Ofv. Finsk. Vet. Förh., xlvii, No. 5, p. 1 (sep. ?). Type **elegantulus** Reuter, pl. ?, f. 1.†

Genus 14.—**Guisardus** Distant, 1904, Faun. Brit. Ind. Rh., ii, 436. Type **pellucidus** Distant, f. 281.†

Genus 15.—?**Chamus** Distant, 1904, Ann. Mag. Nat Hist. (7), xiii, 197. Type **wealei** Distant.

Genus 16.—**Angerianus** Distant, 1904, Faun. Brit. Ind. Rh., ii, 437. Type **fractus** Distant, f. 283.†

Genus 17.—**Volkelius** Distant, 1904, Ann. Mag. N. H. (7), xiii, 271. Type **sulcatus** Distant.

Genus 18.—**Sahlbergella** Haglund, 1895, O. V. A. F. 468 (type fig. in Kirkaldy, 1903, Wien. Ent. Zeit., xxii, p. 13, f. 1). N. B.—This genus remains undescribed. Type **singularis** Haglund.

Genus 19.—**Odoniella** Haglund, op. c., 469. This genus is also undescribed. Type **reuteri** Haglund.

Genus 20.—**Platyngomiris** Kirkaldy, 1902, T. E. S. London, 258. Type **coreoides** Kirkaldy, pl. 5, f. 7.†

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[12] Distant, incorrectly cites *falleni* Stål, as the type (Faun. Brit. Ind. Rh., ii, 443.

Tribe 14.—BRYOCORININ.[13]

Genus 1.—**Pristoneura** Reuter, 1892, Ann. Soc. E. F., lxi, 396. Type **picea** Reuter.

Genus 2.—**Caulotops** Bergr., 1898, Wien. Ent. Zeit., xvii, 33. Type **puncticollis** Bergroth.

Genus 3.—**Araspus** Distant, 1904, Ann. Mag. N. H. (7), xiii, 112. Type **partilus** (Walker), Distant.

Genus 4.—**Mertila** Distant, op. c., 113. Type **malayensis** Distant.

Genus 5.—**Lyde** Distant, 1893, T. E S. London, 90 type fig. in Whymper's Trav. Great Andes app., 114, woodcut facing p. 113†). Type **translucida** Distant.

Genus 6.—†**Monalocoris** Dahlbom, 1851, K. Svensk. Vet. Ak. Handl. 1850), 209 (type fig. in Hahn Wanz. Ins., ii, f. 172). Type **filicis** (Linn.), Dahlb.

Genus 7.—**Psilorrhamphocoris** Kirkaldy, 1903, Wien. Ent. Zeit. xxii, 14 = || *Psilorhamphus* Stål, 1870, O. V. A. F., xxvii, 669. Type **conspersus** (Stål), Kirkaldy.

Genus 8.—**Pycnoderes** Guérin-Méneville, 1856, Sagra's Hist. Cuba, vii, 168 = *Sixeonotus* Reuter, 1875, O. V. A. F., xxxii, 77. Type *insignis* Reuter. Type **quadrimaculatus** Guér., pl. 13, f. 1.†

Genus 9.—**Bryocoris** Fallén, 1829, Hem. Sveciæ, 105 (type fig. in Germar Faun. Ins. Eur fasc., 10, pl. 13). Type **pteridis** (Fall.), Fallén.

Genus 10.—**Cyrtocapsus** Reuter, 1875, O. V. A. F., xxxii, 78 = *Pirithous* Distant, 1884, B. C. A. Het., i, 302. Type *pallipes* Distant, pl. 29, f. 11† (=*caligineus* Stål). Type **caligineus** (Stål), Reuter.

Genus 11.—**Physetonotus** Reuter, 1892, A. S. E. F., lxi, 394 (type fig. in Distant, B C. A. Het., i, pl. 26, f. 20†). Type **atratus** (Dist.), Reut.

Subg. 1.—ORINONOTUS Reuter, op. c., 395 (type fig. in Distant, op. c., f. 19†). Type incurvus (Dist.), Reuter.

Genus 12.—**Arsinotus** Berg, 1892, An. Soc. Cient. Arg., xxxiv, 198. Type **albipes** Berg.

Genus 13.—†**Heterocoris** Guérin-Méneville, 1856, Sagra's Hist. Cuba, vii, 168, Type **dilatatus** Guér., pl. 13, f. 11.†

Genus 14.—**Eccritotarsus** Stål (1860?, K. Svensk. Vet. Handl., 2, pt. 7, 57. Type **nigrocruciatus** Stål.

Genus 15.—**Pseudobryocoris** Distant, 1884, B. C. A. Het., 1, 286. Type **bicolor** Distant, pl. 28, f. 3.†

Genus 16.—**Dacota** Uhler, 1872, Hayden's Surv. Montana, 413. Type **hesperia** Uhler.

Tribe 15.—CLIVINEMINI.

Genus 1.—**Clivinema** Reuter, 1875, O. V. A. F., xxxii, 63. Type **villosa** Reuter.

Genus 2.—**Ranzovius** Distant, 1893, B. C. A. Het., i, 423. Type **crinitus** Dist., pl. 36, f. 20.†

Genus 3.—**Fundanius** Distant, 1884, op. c., 291. Type **maculatus** Distant, pl. 28, f. 10.†

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[13] This is certainly a heterogeneous assemblage and is merely a temporary arrangement.

Tribe 16.—CAPSINI.

Genus 1.—**Pantilius** Curtis, 1833, Ent. Mag., i, 197 (type fig. in Reuter, Hem. Gymn. Eur., v, pl. 2, f. 22).[14] = *Conometopus* Fieber, 1858, Wien. Ent. Mon., ii, 304. Type *tunicatus* (Fabr.), Fieber. Type **tunicatus** (Fabr.), Curtis.

Genus 2.—**Parapantilius** Reuter, 1904, Ofv. Finsk. Vet. Forh., xlv, No. 16, 5 (sep ?). Type **thibetanus** Reuter, pl. 2, f. 2†.

Genus 3.—**Pseudopantilius** Reuter, 1905, op. c., xlvii, No. 5, 6 (sep. ?). Type **australis** (Walker), Reuter, f. 4.

Genus 4.—†**Allorhinocoris** Reuter, 1876, Pet. nouv. ent., ii, 33 (type fig. in Reuter, Hem. Gymn. Eur., v, pl. x, f. 4). Type **flavus** (J. Sahlb.), Reuter = *prasinus* Fieber.

Genus 5.—**Horistus** Fieber, 1860, Eur. Hem., 66. Type **rubrostriatus** (H. S., Wanz. Ins., iii, f 260), Fieber.

Subg. 1.—LOPISTUS Kirkaldy, 1905, Wien. Ent. Zeit., xxiv, 268 = ‖ *Lopus* Spinola, 1837, Essai, 188 (type fig. in Hahn, Wanz. Ins., i, f. 5.[15] Type gothicus (L.), Spinola.

Genus 6.—**Pantiliodes** Noualhier, 1893, A. S. E. F., lxii, 15 (type fig. in Reuter, Hem. Gymn. Eur., v, pl. 2, f. 14†). Type **punctum** (Reuter), Noualh. (=*pallidus* Rambur).

Genus 7.—**Trichobasis** Reuter. 1904, Ofv. Finsk. Vet. Förh., xlvi, No. 10, 1 (sep. ?). Type **setosa** Reuter.

Genus 8.—**Sarona** Kirkaldy, 1902, Fauna Hawaii., iii, 142. Type **adonias** pl. 5, f 23†.

Genus 9.—**Horwathia** Reuter, 1881, Berlin Ent. Zeit., xxv, 174 = *Horvathia* Atkinson, 1890, J. A. S. Bengal, lviii, pt. 2, suppl. 56 (type fig. in Reut., Hem. Gymn. Eur., v, pl. 2, f. 18†). Type **hieroglyphicus** (M. R.), Reuter.

Genus 10.—**Dionconotus** Reuter, 1894, Rev. Ent., xiii, 129 = ‖ *Dioncus* Fieb. 1858, Wien. Ent. Mon., ii, 308 (type fig. in Reut, Hem. Gymn. Eur., v, pl. 10, f. 8. Type **neglectus** Fieber.

Genus 11.—**Miridius** Fieber, op. c., 306. Type **4-virgatus** (Costa, Att. Inst. incorr. Sci. Nat. Napoli, pl. f. 3), Fieber.

Genus 12.—**Palacocoris** Reuter, 1875, O. V. A. F., xxxii, 62. Type **suavis** Reuter.

Genus 13.—**Resthenia** Spinola, 1837, Essai, 184 = *Platytylus* Fieber, 1858, Wien Ent. Mon., ii. Type *pyrrhula* (Burm.), Fieber (*pyrrhula*, fig. in Hahn, Wanz. Ins., iii, f. 281). Type **scutata** Spin.

Subg. 1.—CALLICHILA Reuter, op. c., 64 (type fig. in Distant, B. C. A. Het., i, pl. 24, f. 18). Type plagigera Stål).

Genus 14.—**Oncerometopus** Reut., op. c., 65. Type **nigriclavus** Reut.

Genus 15.—**Mabelia** Kirkaldy, 1903, Wien. Ent. Zeit., xxii, 14. Type **pulcherrima** Kirkaldy.

Genus 16.—**Macgregorius** Kirkaldy, l. c. Type **regalis** Kirkaldy.

Genus 17.—**Lopidea** Uhler, 1872, Hayden's Geol. Surv. Montana, 411 (type fig. in Uhler, Bull. U. S. Geol. Surv., iii, pl. 28, f. 15†). Type **medius** (Say), Uhler.

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[14] The same remarks apply to this as to vol. iv (supra).

[15] N. B.—Several generic propositions of Hahn, etc., were only names and not described, consequently invalid. *Lopus* was first described (by Hahn) in 1833. See "Oncotylini."

Genus 18.—**Hadronema** Uhler, 1872, op. c., 412 (type fig. in Uhl., Wheeler's Report Geog. and Geol. Surv., v, Zool., pl. 42, f. 12†). Type **militaris** Uhler.

Genus 19.—**Eremobiellus** Reuter, 1895, Rev. Ent., xiv, 135 (type fig. in Reuter, Hem Gymn. Eur., v, pl. 2, f. 15†). Type **sinuosus** Reut.

Genus 20.—**Lomatopleura** Reuter, 1875, O. V. A. F., xxxii, 67 (*hesperus* Kirkaldy, fig. in T. E. S. London, 1902, pl. 5, f. 1). Type **caesar** Reuter.

Genus 21.—**Dionyza** Distant, 1893, T. E. S. London, 88 [type fig. in † Whymper's Trav. Great Andes, 114; "woodcut facing p. 13" (see Distant) = ? 113.] Type **variegata** Distant

Genus 22.—**Capellanus** Distant, 1904, Ann. Mag. N. H. (7), xiii, 109 (type fig. in Dist., B. C. A. Het., i, pl. 37, f. 9 †). Type **sparsus** (Dist. , Distant.

Genus 23.—**Phytocoris** Fallén, 1814, Spec. nov. Hem. Disp. Meth. exh., 10 (type fig. in Reut., Hem. Gymn. Eur., v, pl. 8, f. 9). Type **populi** (L.), Westwood, 1839.

Genus 24.—**Kamehameha** Kirkaldy, 1902, Fauna Hawaii., iii. 137. Type **lunalilo** Kirkaldy, pl. 5, f. 22.†

Genus 25.—**Compsocerocoris** Reuter, 1875. O. V. A. F., xxxii. 70 *elegans* Distant, fig. in B. C. A. Het, i, pl. 25, f. 14). Type **annulicornis** Reuter.

Genus 26.—**Taedia** Distant, 1883, B. C. A. Het.. i, 262. Type **bimaculata** Distant, pl. 25, f. 16.†

Genus 27.—**Paracalocoris** Distant, op. c., 263. Type **jurgiosus** (Stal), Distant, 1904, pl. xxv, f. 17.

Genus 28.—**Poeas** Distant, 1893, op. c., 428. Type **reuteri** Dist., pl. 37, f. 5.†

Genus 29.—**Neurocolpus** Reuter, 1875, O. V. A F, xxxii, 69 (var. *mexicanus* fig. in Distant, op. c., pl. 23, f. 5. Type **nubilus** (Say , Reuter.

Genus 30.—**Pappus** Distant, 1883, B C. A. Het, i, 266. Type **sordidus** Distant, pl. 25, f. 22.†

Genus 31.—**Garganus** Stål, 1862, Stett. Ent Zeit., xxiii, 321 (type fig. in Distant, op. c., pl. 25, f. 3). Type **albidivittis** Stål.

Genus 32.—**Jacchinus** Distant, 1893, op. c., 430. Type **tabascoensis** Dist., pl. 37, f. 10.†

Genus 33.—**Ischnoscelicoris** Reuter and Puton, 1886, Expl. Sci. Tunis Hem., 17 (sep. ?) = ‖ *Ischnoscelis* Reuter, 1880, Öfv. Finsk. Vet. Förh. xxii, 15 = *Ischnocelicoris* Atkinson, 1890, J. A. S. Bengal. lviii, pt. 2 suppl. 70 (type fig. in Reut., Hem. Gymn. Eur., v, pl. 2, f. 15† . Type **rubrinervis** Reut. and Put.

Genus 34.—**Alloeonotus** Fieber, 1858, Wien. Ent. Mon., ii, 307 = *Alloenotus* Atkinson, op. c., supra, 70 (type fig. in Reuter, Hem. Gymn. Eur., v, pl. 8, figs. 4 and 5). Type **distinguendus** Fieb. (= *fulvipes* Scop., var.).

Genus 35.—**Calocoris** Fieber, 1858, Wien. Ent. Mon., ii, 305 = *Closterotomus* Fieber, op. c., 306 (type fig. in Hahn Wanz. Ins., iii, f. 232. Type *bifasciatus* (Fabr.), Fieb. (= *biclavatus* H. S.) = ‖ *Lophyrus* Kolenati, 1845, Mel. Ent., ii, 106. Type *sexguttatus* (Fabr.), Reuter. Type **affinis** Fieb., Reut., 1888 (=*salviæ* Hahn, Wanz. Ins., ii, f. 217).

Genus 36.—**Charitocoris** Reuter, 1904, Ann. Mus. Zool. Peterb., ix, 6 (sep. ?). **pallidus** Reuter.

Genus 37.—**Adelphocoris** Reuter, 1896, Ofv. Finsk. Vet. Förh., xxxviii, 168 (type fig. in Saunders, Hem. Het. Brit., pl. 22, f. 4). Type **seticornis** (Fabr.), Reuter.

Genus 38.—**Poecilonotus** Reuter, 1896, op. c., 167 (type fig. in Reuter, Hem. Gymn. Eur., v, pl. 6, f. 5†). Type **picturatus** Reuter.

Genus 39.—**Trichophoroncus** Reuter, 1896, op. c., 168 (type fig. in Reuter, Hem. Gymn. Eur., v, pl. 2, f. 12). Type **albonotatus** (Yakov.), Reuter.

Genus 40.—**Callodemas** Uhler, 1895, Bull. Colo. Exp. Sta., 31, 33. Type **laevis** Uhler.

Genus 41.—**Caloudas** Distant, 1883, B. C. A. Het., i, 268. Type **superbus** Distant, pl. 22, f. 22. †

Genus 42.—**Pachypterna** Fieber, 1858, Wien. Ent. Mon., ii, 304 (type fig. in Reuter, Hem. Gymn. Eur., v, pl. 5, f. 9). Type **fieberi** Fieber.

Genus 43.—**Umslopogas** Kirkaldy, 1902, T. E. S. London, 254. Type **nigroquadristriatus** Kirk., pl 5, f. 11.†

Genus 44.—**Creontiades** Distant, 1883, B. C. A. Het., i, 237. Type **rubrinerve** (Stål), Dist., pl. 23, f. 12.

Genus 45.—**Megacoelum** Fieber, 1858, Wien. Ent. Mon., ii, 305 (type fig. in Reuter, Hem. Gymn. Eur., v, pl. 6, f. 1) = *Megacaelum* Atkinson, J. A. S. Bengal, lviii, pt. 2, suppl., 80. Type **infusus** (H. S.), Fieber.

Genus 46.—**Indoelum** n. g. = *Megacoelum* div. b. Distant, 1904, Faun. Brit. Ind. Rh., ii, 429. Type **rubricatum** (Distant).

Genus 47.—**Tancredus** Distant, op. c., 430. Type **sandaracatus** Dist., f. 275.†

Genus 48.—**Ischnias** Berg, 1892. An. Soc. Cient. Arg., xxxiv, 193. Type **saltensis** Berg.

Genus 49.—**Reuterista** Kirkaldy, 1904, Entom., xxxvii, 280 = ‖ *Brachybasis* Reut., 1900, Ofv. Finsk. Vet. Förh., xlii, 253. Type **desertorum** Reuter.

Genus 50.—**Volumnus** Stål, 1865, Hem. Afr., iii, 19. Type **straminicolor** (Stål), Stål.

Genus 51.—**Hypereides** Kirkaldy, 1903, Wien. Ent. Zeit., xxii, 14 = ‖ *Melinna* Uhler, 1887, Ent. Amer., iii, 68. Type **modesta** (Uhler), Kirkaldy.

Genus 52.—**Proba** Distant, 1883, B. C. A. Het., i, 270. Type **gracilis** Distant, pl. 25, f. 5.

Genus 53.—**Paraproba** Distant, l. c. Type **fasciata** Distant, pl. 26, f. 4.

Genus 54.—**Pandanus** Distant, 1883, op. c., 271. Type **praeclara** Distant, pl. 26, f. 8.

Genus 55.—**Pycnopterna** Fieber, 1858, Wien. Ent. Mon., ii, 307 (type fig. in Saunders, Hem. Het. Brit., pl. 22, f. 6) = ‖ *Cyllocoris* Kolenati, 1845, Mel. Ent., ii, 103. Type **striatus** (L.), Reuter, 1888.

Genus 56.—**Actinonotus** Reuter, 1896, Ofv. Finsk. Vet. Förh., 164. Type **pulcher** (H. S., Wanz. Ins., iii, f. 293), Reuter.

Genus 57.—**Proboscidocoris** Reuter, 1884, Ofv. Finsk. Vet. Förh., xxv, 30 (*seti* fig. in Kirkaldy, T. E. S. London, 1902, pl. 6, f. 12). Type **fuliginosus** Reuter.

Genus 58.—**Odontoplatys** Fieber, 1858, Wien. Ent. Mon., ii, 326. Type **bidentulus** H. S., Wanz. Ins., vi, f. 665), Fieber.

Genus 59.—**Epimecellus** Reut., 1894, Rev. Ent., xiii, 135 = (*Epimecis* Reut., 1879, Ofv. Finsk. Vet. Förh., xxi, 30 (type fig. in Reut., Hem. Gym. Eur., v, pl. 2, f. 4 †). Type **cyllocoroides** Reuter.

Genus 60.—**Grypocoris** Douglas & Scott, 1868, Ent. Mo. Mag., v, 116 (type figure in Reuter, op. c., pl. 10, f. 7). Type **fieberi** D. & S.

Genus 61.—**Hadrodemus** Fieber, 1858, Wien. Ent. Mon., ii, 305 (not preoccupied) = *Homodemus* Fieber, 1860, Eur. Hem., 64 (figured as *Phytocoris scriptus* in Hahn, Wanz. Ins., ii, f. 202). Type **marginellus** (Fabr.), Reuter, (= *M.-flavum* Goeze).

Genus 62.—**Brachycoleus** Fieber, 1858, Wien. Ent. Mon., ii, 305 (type fig. in Reuter, Hem. Gymn. Eur., v, pl. 5, f. 8. Type **scriptus** (Fabr.), Fieber.

Genus 63.—**Eurycyrtus** Reuter, 1879, Ofv. Finsk. Vet. Förh., xxi, 33 (type fig. in Reuter, Hem. Gymn. Eur., v, pl. 1, f. 22†). Type **bellevoyei** Reuter.

Genus 64.—†**Stenotus** Yakovlev, 1877, Bull. Soc. Imp. Nat. Moscou, lii, pt. 2, 285 (type fig. in Reuter, op. c., pl. 5, f. 5) = || *Oncognathus* Fieber, 1858, Wien. Ent. Mon., ii, 303. Type *binotatus* (Fabr.), Fieber. Type **sareptanus** Yak. (= *binotatus* Fabr.).

Genus 65.—**Dichrooscytus** Fieber, 1858, op. c., 309 (type fig. in H. S., Wanz. Ins., vi, f. 610) = *Dicrooscytus* Reuter, 1875, Bih. Vet. Ak. Handl. iii, 15. Type **rufipennis** (Fall), Reuter, 1896.

Genus 66.—**Olympiocapsus** Kirkaldy, 1902, T. E. S. London, 255. Type **caelestialium** Kirkaldy, pl. 4, fis. 17, 18.†

Genus 67.—**Plesiocoris** Fieber, 1861, Eur. Hem., 272 = || *Tylonotus* Fieber, 1858, Wien. Ent. Mon., ii, 310 (type fig. in Saunder's Hem. Het. Brit., pl. 22, f. 9). Type **rugicollis** (Fall.), Fieber.

Genus 68.—**Lygus** Hahn, 1833, Wanz. Ins., i, 147, f. 77.[16] Type **limbatus** (Fall.).*

Subg. 1.—ORTHOPS Fieber, 1858, Wien. Ent. Mon., ii, 311 (type fig. in Saunders, Hem. Het. Brit., pl. 23, f. 7). Type **kalmi** (L.).

Subg. 2.—LYGOCORIS Reuter, 1875, Bih. Vet. Handl., iii, 16 (type fig. in Saunders, op. c., f. 5). Type **pabulinus** (L.), Reuter.

Subg. 3.—AGNOCORIS Reuter, 1875, op. c., 19 (type fig. in Hahn. Wanz. Inz., i, f. 80, as *rubricatus*). Type **rubicundus** (Fall.), Reuter.

Genus 69.—**Niastama** Reuter, 1904, Ofv. Finsk. Vet. Förh., xlvii, No. 5, 11 (sep. ?). Type **punctaticollis** Reuter, f. 6.†

Genus 70.—**Chrysodasia** Reuter, 1892, A. S. E. F., lxi, 400. Type **strigifrons** Reut.

Genus 71.—**Anniessa** Kirkaldy, 1903, Wien. Ent. Zeit., 22, 15. Type **chlaunacha** Kirk.

Genus 72.—**Neoborops** Uhler, 1895, Bull. Col. Exp. Sta., 31, 36. Type **vigilax** Uhler.

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[16] Distant, Faun. Brit. Ind. Rh., ii, 454, falsely cites *pabulinus* as type, this species not belonging to typical subgenus.

Genus 73.—**Zygimus** Fieber, 1870, Verh. zool. bot. Ges. Wien., xx, 249. Type **nigriceps** (Fall.), Fieber, pl. 6, f. 7.

Genus 74.—**Camptozygum** Reut., 1896, Ofv. Finsk. Vet. Förh., xxxviii, 160 = || *Hadrodema* Fieber, 1858, Wien. Ent. Mon., ii, 311 (type fig. in Saunders, Hem. Het. Brit., pl. 23, f. 8). Type **pinastri** (Fieb.), Fieber.

Genus 75.—**Lygidea** Reuter, 1879. Ofv., Finsk. Vet. Förh., xxi, 54 (type fig. in Reuter, Hem. Gymn. Eur., v, pl. 1, f. 16). Type **illotus** (Stål), Reuter.

Genus 76.—**Cyphodema** Fieber, 1858, Wien. Ent. Mon., ii, 310 (type fig. in Reuter, op. c., pl. 4, f. 2). Type **meyerdüri** Fieber (= *instabilis* Lucas).

Genus 77.—**Eurybrochis** Kirkaldy, 1902, T. E. S. London, 259. Type **zanna** Kirkaldy, pl 5, f. 8.

Genus 78.—**Polymerus** Westwood, 1839, Intro. Mod. Classn. Ins.: Synop. Brit. Ins.,[17] 241 = *Systratiotus* Douglas and Scott, 1865, Brit. Hem., 442. Type *nigrita* (Fall.), D. and S., pl. 14, f. 9. Type **holosericeus** Hahn, Westw.

Genus 79.—**Poecilloscytus** Fieber, 1858, Wien. Ent. Mon., ii, 311 (type fig. in Saunders, Hem. Het. Brit., pl. 23, f. 10). Type **unifasciatus** Fieber, Distant, 1904.

Genus 80.—**Characochilus** Fieber, op. c., 309 (type fig. in D. and S., Brit. Hem., pl. 15, f. 1). Type **gyllenhali** (Fall.), Fieber.

Genus 81.—**Tropidosteptes** Uhler, 1878, P. Boston, S. N. H., xix, 404. Type **cardinalis** Uhler.

Genus 82.—**Liocoris** Fieb., op. c., 309 (type fig. in Reuter, Hem. Gymn. Eur., v, pl. 3, f. 4). Type **tripustulatus** (Fabr.), Fieber.

Genus 83.—**Camptobrochis** Fieber, op. c., 304 = *Camptobrochys* Fieber, 1860, Eur. Hem., 64. Type **punctulatus** (Fallen), Distant, 1904.

Genus 84.—**Poecilocapsus** Reuter, 1875, O. V. A. F., xxxii, 73 (type fig. in Slingerland. Type **lineatus** (Fabr.), Reuter.

Subg. 1.—METRIORRHYNCHOMIRIS Kirkaldy, 1904, Entom., 260 = || *Metriorrhynchus* Reuter, l. c. Type **affinis** (Reuter), Kirkaldy.

Genus 85.—**Callicapsus** Reuter, op. c., 75. Type **histrio** (Reuter).

Genus 86.—†**Derophthalma** Berg, 1883, An. Soc. Cien. Arg., xvi, 22 (sep. 79 !). Type **reuteri** Berg.

Genus 87.—**Neoborus** Distant, 1884, B. C. A. Het., i, 276. Type **saxeus** Distant, pl. 27, f. 5.

Genus 88.—**Hemicerocoris** Lethierry, 1881, A. S. E. Belg., xxv, 11. Type **nigritarsis** Leth.

Genus 89.—**Diognetus** Distant, 1904, Faun. Brit. Ind. Rh., ii, 431. Type **intonsus** Distant, f. 277.

Genus 90.—**Hermotinus** Distant, op. c., 462. Type **signatus** Dist., f. 296.

Genus 91.—**Gismunda** Distant, op. c., 463. Type **chelonia** Dist., f. 297.

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[17] *Polymerus holosericeus* was described by Hahn in 1831 (Wanz. Ins., i, f. 17), with only a *specific description*. The *genus* was briefly diagnosed by Westwood in 1839 without mention of any species, but referring to Hahn.

Genus 92.—**Plexaris** Kirkaldy, 1902, Entomologist, xxxv, 282. Type **saturnides** Kirkaldy.

Genus 93.—**Platycapsus** Reuter, 1904, Ofv. Finsk Vet. Förh, xlvii, No. 4, 11 (sep. ?). Type **acaciae** Reuter.

Genus 94.—**Deraeocoris** Kirschbaum, 1855,† J. b. Ver. Nat. Nassau, x, 208 (sep. 31 !) (type fig. in Wolff. Icones, Cimic., i, pl. 4, f. 35) = *Capsus* of many authors (nec Fabricius typ.) = *Macrocapsus* Reut., 1879, Ofv. Finsk Vet. Förh., xxi, 55 (type fig. in Stål, Stett. Ent. Zeit., xix, pl. 1, f. 1). Type *brachialis* (Stål), Reuter.† Type **medius** Kirschb. (= *tricolor* Fabr.), Dist.

Genus 95.—**Chilocrates** Horváth, 1889, Termész. füz, xii, 39. Type **lenzii** Horváth.

Genus 96.—**Shana** Kirkaldy, 1902, Entomologist, xxxv, 316. Type **ravana** Kirkaldy.

Genus 97.—**Saundersiella** Reuter, 1890, Rev. Ent, ix, 262 = ‖ *Saundersia* Reuter, 1876, Pet. nouv. ent., ii, 32 (type fig. in Reuter, Hem. Gymn. Eur., v, pl 1, f. 6†). Type **moerens** Reuter.

Genus 98.—**Romna** Kirkaldy, n. n., = ‖ *Morna* F. B. White, 1878, Ent. Mo. Mag, xv, 130. Type **capsoides** White.

Genus 99.—**Coccobaphes** Uhler, 1878, P. Boston N. H. Soc., xix, 461 = †*Caccobaphes* Reuter, 1879, Zool. Jahrb., 507. Type **sanguinarius** Uhler.

Genus 100.—**Kalania** Kirkaldy, 1904, Entom., xxxvii, 280 = ‖ *Baracus* Kirkaldy, 1902, Fauna Hawaii, iii, 143. pl. 4, f. 21.† Type **hawaiiensis** Kirkaldy.

Genus 101.—**Stethoconus** Flor, 1861, Arch. Naturk. Kurlands (2), iv (sep. ?), 615 = *Acropelta* Mella, 1869, Bull. Soc. E. Ital., i, 292, pl. 4.† Type *pyri* Mella (= *cyrtopeltis* Flor). Type **cyrtopeltis** Flor.[16]

Genus 102.—**Bothynotus** Fieber, 1864, Wien. Ent. Mon., viii, 76 = *Trichymenus* Reuter, 1875, Not. Faun. Fenn., xiv, 7. Type *pilosus* (Boh.), Reuter. Type fig. in Reuter, Hem. Gymn. Eur., v, pl. 4, f. 1. Type **minki** Fieber (= *pilosus* Boheman).

Genus 103.—**Alloeotomus** Fieber, 1858, Wien. Ent. Mon., ii, 303 (type fig. in H. S., Wanz. Ins., iii, f. 284, as *marginepunctatus*). Type **gothicus** (Fall.), Fieber.

Genus 104.—**Euarmosus** Reuter, 1875, O. V. A. F., xxii, 76. Type **sayi** Reuter.

Genus 105.—**Eubatas** Distant, 1884, B. C. A. Het., i, 277. Type **chiriquinus** Distant, pl. 27, f. 8 †

Genus 106.—**Neocapsus** Distant, l. c. Type **mexicanus** Distant, pl. 22, f. 19.†

Genus 107.—**Horcias** Distant, l. c. Type **variegatus** Dist., pl. 24, f. 13. †

Genus 108.—**Calocorisca** Distant, op. c., 280. Type **villosa** Dist., pl. 24, f. 17. †

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[16] Reuter, Atkinson and in fact all authors persist in calling this *mamillosus* (Flor), but I can see no reason for the rejection of the earlier *cyrtopeltis* Flor. They have also overlooked the fact that Flor, not Fieber, is the author of the genus.

Genus 109.—**Cimatlan** Distant, op. c., 281. Type **delicatum** Distant, pl. 27, f. 15.†

Genus 110.—**Henicocnemis** Stål, 1858, K. Svensk. Vet. Ak., 2, No. 7, 53 (*albitarsis* Stål, figured in B. C. A. Het., i, pl. xxvii, f. 19). Type **patellata** Stål.

Genus 111.—**Capsus** Fabricius, 1803, Syst. Rhyng., 241 (type fig. in Saunders, Hem. Het. Brit., pl. 24, f. 5) = *Rhopalotomus* Fieber, 1858, Wien. Ent. Mon., ii, 307. Type **ater** (Linn.), Fabricius.

Genus 112.—**Eblis** Kirkaldy, 1902, T. E. S. London, 256. Type **amasis** Kirkaldy, pl. 6, f. 10.†

Genus 113.—**Irbisia** Reuter, 1879, Ofv. Finsk. Vet. Förh., xxi, 57 (type fig. in Reuter, Hem. Gymn. Eur., v. pl. 1, f. 4) = *Thyrilus* Uhler, 1884, P. Calif. Ac. Sci. (2), iv, 267. Type *pacificus* (Uhler). Type **sericans** (Stål), Reuter.

Genus 114.—**Eurystylus** Stål, 1870, O. V. A. F., xxviii, 67 (type fig. in Kirkaldy, T. E. S. London, 1902, pl. 6, figs. 13, 20). Type **costalis** Stål.

Genus 115.—**Dirhopalia** Reuter, 1904, Ofv. Finsk. Vet. Förh., xlvii, No. 5, 8 (sep. ?). Type **antennatus** (Walker), Reuter, f. 5.

Genus 116.—**Sabellicus** Distant, 1904, Ann. Mag Nat. Hist. (7), xiii, 114. Type **apicifer** (Walker).

Genus 117.—**Reada** F. B. White, 1878, Ent. Mo. Mag., xv, 132. Type **mayri** White.

Genus 118.—**Macrolonius** Stål, 1870, O. V. A. F., xxviii, 670. Type **sobrinus** (Stål), Stål.

Genus 119.—**Hyalopeplus** Stål, l. c., 671. Type **vitripennis** (Stål).†

Genus 120.—**Callicratides** Distant, 1904, Faun. Brit Ind. Rh., ii, 417 (type fig. in Kirkaldy, J. Bombay N. H. Soc., xiv., pl. A, f. 8, and B. f. 6†). Type **rama** (Kirby), Distant.

Genus 121.—**Isabel** Kirkaldy, 1902, J. Bombay N. H. S., xiv, 58 = *Isabellina* Blanford, in Distant, 1904, Faun. Brit. Ind. Rh., ii, 415. Type **ravana** (Kirby), Kirkaldy, pl. A, f. 9, and B. f. 7.†

Genus 122.—**Kosmiomiris** Kirkaldy, 1902, T. E. S. London, 253. Type **rubroornatus** Kirkaldy, pl. 5, f. 4.†

Genus 123.—**Cheilocapsus** Kirkaldy, 1902, op. c., 259 = *Chilocapsus* Blanford, in Distant, 1904 Faun. Brit. Ind., ii, 442. Type **flavomarginatus** Kirkaldy, pl. 6, f. 9.†

Genus 124.—**Chrysorrhanis** Kirkaldy, 1902, Wien. Ent. Zeit., xxi, 225. Type **daphne** Kirkaldy, fig.†

Genus 125.—**Mystilus** Distant, 1904, Faun. Brit. Ind. Rh., ii, 420. Type **priamus** Distant, f. 268.†

Genus 126.—**Malocopeplus** Kirkaldy, 1902, T. E. S. London, 254. Type **discoidalis** (Walker), Kirkaldy.

Genus 127.—**Malalasta** Distant, 1904, Faun. Brit. Ind. Rh., ii, 446. Type **superba** Dist., f. 287.†

Genus 128.—**Estuidus** Distant, 1904, Ann. Mag. N. H. (7), xiii, 272. Type **foveatus** Distant.

Genus 129.—**Onomaus** Distant, 1904, Faun. Brit. Ind. Rh., ii, 416. Type **pompeus** Distant, f. 264.†

Genus 130.—**Harpedona** Distant, op. c., 418. Type **marginata** Distant, f. 266.†

Genus 131.—**Porphyrodema** Reuter, 1904, Ofv. Finsk. Vet. Förh., xlvii, No. 5, 3. Type **flavolineatum** Reuter.

Genus 132.—**Clapmarius** Distant, 1904, Faun. Brit. Ind. Rh., ii, 419. Type **turgidus** Distant, f. 267.†

Genus 133.—**Zulaimena** Kirkaldy, 1902, T. E. S. London, 256. Type **hathor** Kirkaldy, pl. 6, f. 8.†

Genus 134.—**Korasiocapsus** Kirkaldy, op. c., 260. Type **pylaon** Kirk.

Genus 135.—**Tinginotum** Kirkaldy, op. c., 263. Type **javanum** Kirk.

Genus 136.—**Meginoe** Kirkaldy, 1902, Entomologist, xxxv, 283. Type **hovana** Kirkaldy.

Genus 137.—**Makua** Kirkaldy, op. c., 282. Type **psole** Kirkaldy.

Genus 138.—**Gutrida** Kirkaldy, op. c., 284. Type **gabonia** Kirkaldy.

Genus 139.—**Aphanosoma** Costa, 18, 55 (?), Atti R. Inst. inc. Nat. Sci. Napoli, ? vol. , 251 = *Gryllocoris* Baerensprung, 1859, Berlin, Ent. Zeit., 334. Type *angusticollis* Baer., pl. 6, f. 8†. Type **italicum** Costa, pl. 2, f. 1.†

Genus 140.—**Mycterocoris** Uhler, 1904, Proc. U. S. N. M., xxvii, 358. Type **cerachates** Uhler.

Tribe 17.—FULVIINI.

Genus 1.—**Fulvius** Stål, 1862, Stett. Ent. Zeit., xxxiii, 322 (type fig. in B. C. A. Het., i, pl. 23, f. 15) = *Teratodella* Reuter, 1875, Bih. Vet. Ak., iii, 7. Type *anthocoroides* Reut. (=*brevicornis* Reuter) = *Pamerocoris* Uhler, 1878, Bull. U. S. Geol. Surv., iii, 424. Type *anthocoroides* Uhler (= *brunneus* Provancher) = *Camelocapsus* Reuter, 1878, B. S. E. F., (5), viii, p. cv. Type *oxycarenoides* Reuter. Type **anthocoroides** Stål.

Genus 2.—**Ceratofulvius** Reuter, 1902, Ofv. Finsk. Vet. Förh., xliv, 156. Type **clavicornis** (Reuter), Reuter.

Genus 3.—**Rhinofulvius** Reuter, l. c. Type **albifrons** (Reuter).

Genus 4.—**Tyraquellus** Distant, 1904, Faun. Brit. Ind. Rh., ii, 471. Type **albofasciatus** (Motsch.), Distant, f. 303.†

Tribe 18.—MIRINI.

Genus 1.—**Acetropis** Fieber, 1858, Wien. Ent. Mon., ii, 302 = *Acotropis* Marshall, 1868, Ent. Mo. Mag., iv, 268. Type **carinatus** (H. S.), Wanz. Ins., vi, f. 609 , Fieber.

Genus 2.—†**Collaria** Provancher, 1872, Nat. Canad., iv, 79 (*oleosus* fig. in B. C. A. Het., i, pl xxiv, f. 2) = *Trachelomiris* Reuter, 1875, O. V. A. F., xxxii, 61. Type *oculatus* Reuter = *Nabidea* Uhler, 1878, Proc. Bost. Soc. N. H., xix, 397. Type *coracina* Uhler (=*meilleuri* Provancher). Type **meilleuri** Provancher.

Genus 3.—**Stenodema** Laporte, 1832, Essai, 34 (type fig. in H. S., Wanz. Ins, iii, f. 257) = *Lobostethus* Fieber, 1858, Wien. Ent. Mon., ii, 301. Type *virens* (F.), Fieb. (= Linn.) = *Miris* of many authors. Type **virens** (L.), Laporte.

Subg. 1.—BRACHYSTIRA Fieber, op. c., 301 = *Brachytropis* Fieber, op. c., 343. Type calcarata (Fall.), Fieber.

Genus 4.—**Eioneus** Distant, 1893, B. C. A. Het., ii, 416. Type **bilineatus** Distant, pl. 36, f. 9.†

Genus 5.—**Notostira** Fieber, 1858, Wien. Ent. Mon., ii, 301 (type fig. in Hahn, Wanz. Ins., iii, f. 163). Type **erratica** (Fall.), Fieber.

Subg. 1.—MEGALOCEROEA Fieber, l. c (type fig. in H. S., Wanz. Ins., iii, f. 258). Type longicornis (Fallen), Fieb. (= *recticornis* Geoffr.).

Subg. 2.—TRIGONOTYLUS Fieber, op. c., 302 (type var. *pulchellus*, fig. in Hahn, Wanz. Inz., ii, f. 200). Type ruficornis (Fall.), Fieber (= Geoffroy).

Genus 6.—**Oronomiris** Kirkaldy, 1902, Fauna, Hawaii., iii, 144. Type **hawaiiensis** Kirkaldy, pl. 5, f. 30.†

Genus 7.—**Dolichomiris** Reuter, 1882, Ofv. Finsk. Vet. Förh., xxv, 29. Type **linearis** Reuter.

Genus 8.—**Neomiris** Distant, 1893, T. E. S. London, 87 [type fig. in Whymper's Trav. Great Andes app., 113, woodcut (1892)]. Type **praecelsus** Distant.†

Genus 9.—**Austromiris** Kirkaldy, 1902, Tr. E. S. London, 267. Type **viridissimus** Kirkaldy, pl. v, f. 12, and pl. 6, f. 22.

Genus 10.—**Minytus** Distant, 1883, B. C. A. Het., i, 237. Type **argillgceus** Distant, pl. 34, f. 1.

Genus 11.—**Teratocoris** Fieber, 1858, Wien. Ent. Mon., ii, 302 (type var. *dorsalis*, fig. in Ent. Ann. for 1866, fig. 4). Type **antennatus** (Boh.), Fieber.

Genus 12.—**Nesiomiris** Kirkaldy, 1902, Fauna Hawaii., iii, 144. Type **hawaiiensis** Kirkaldy, pl. 5, f. 50.†

Genus 13.—**Eurymiris** Kirkaldy, 1902, Tr. E. S. London, 266. Type **eurynome** Kirkaldy, pl. 5, f. 21.†

Genus 14.—**Callimiris** Reuter, 1875, O. V. A. F., xxxii, 60. Type **uhleri** Reuter.

Genus 15.—**Actitocoris** Reuter, 1880, Med. Soc. Faun. Fenn., v, 167 = ‖ *Actinocoris* Reuter, 1878, op. c., ii, 194. Type **signatus** Reuter.

Genus 16.—**Ophthalmomiris** Berg, 1883, † An. Soc. Cient. Arg., xvi, 6 (sep. 64 !). Type **reuteri** Berg.

Genus 17.—**Miris** Fabricius, 1794, Ent. Syst., iv, 183 (type fig in H. S., Wanz. Ins., iii, f. 261) = *Leptopterna* Fieber, 1858, Wien. Ent. Mon., ii = †*Lopomorphus* Douglas & Scott, 1865, Brit. Hem., 293. Type *ferrugatus* (Fall.), D. & S., pl. 10, f. 6. Type **dolabratus** (L.), Fabr.

Genus 18.—**Zanessa** Kirkaldy, 1902, Tr. E. S. London, 267. Type **rubrovariegata** Kirkaldy, pl. 5, f. 13, and 6, f. 15.†

Genus 19.—**Porpomiris** Berg, 1883, † An. Soc. Cient. Argent., xvi, 8 (sep. 66 !). Type **picturatus** Berg.

Genus 20.—**Nymannus** Distant, 1904, Ann. Mag. N. H. (7), xiii, 195. Type **typicus** Distant.

Genus 21.—**Rhinomiris** Kirkaldy, 1902, Tr. E. S. London, 268. Type **vicarius** (Walker), Kirkaldy, pl. 5, f. 6.†

Genus 22.—**Lasiomiris** Reuter, 1891, Rev. Ent., x. 130 = *Matenesiu*s[19] Distant, 1904, Faun. Brit. Ind. Rh., ii, 425. Type *marginatus* Distant, f. 272 (= *albopilosus* Leth.). Type **lineaticollis** Reuter.

Genus 23.—**Mecistoscelis** Reut., op. c., 131 (type fig. in Distant, 1904, Faun. Brit. Ind. Rhynch., ii, f. 269). Type **scirtetoides** Reuter.

Tribe 19.—MYRMECORINI.

Genus 1.—**Pithanus** Fieber, 1858, Wien. Ent. Mon., ii, 305. Type **maerkelii** (H. S., Wanz. Ins., iv, f. 406), Fieber.

Genus 2.—**Myrmecoris** Gorski, 1852, Anal. Ent. Prov. S.-W. Ross., i, 167 (type fig. in Breddin, 1896, Zeit. f. Naturw., pl. 1, f. 11). Type **gracilis** (F. Sahlb.), Gorski.

Genus 3.—**Mimoceps** Uhler, 1890, Tr. Maryland Ac. Sci., i, 83. Type **insignis** Uhler.

Genus 4.—**Sphinctothorax** Stål, 1853, O. V. A. F., 260 (*montandoni* Kirkaldy, fig. in T. E. S. London, 1902, pl. 5, f. 3). Type **leucophaeus** (Germar), Stål.

Genus 5.—**Laurinia** Ferrari & Reuter, 1884, Ann. Mus. Genova (2), 1, 481. Type **fugax** Ferrari & Reuter.

Genus 6.—**Herdonius** Stål, (? 1860), K. Svensk. Ak. Handl., 2, pt. 7, p. 55. Type **armatus** Stål.

Genus 7.—**Camponotidea** Reuter, 1879, Ofv. Finsk. Vet. Förh., xxi, 176 (type fig. † in Waterhouse's Aid, Ident. Ins., pl. 25). Type **saundersi** (Puton), Reuter

(The next seven tribes consist of a single genus only at present.)

Tribe 20.—HEIDEMANNIINI.

Genus 1.—**Heidemannia** Uhler, P. E. S. Washington, ii, 119. Type **cixiiformis** Uhler, text fig. 7.†

Tribe 21.—PERITROPINI.

Genus 1.—**Peritropis** Uhler, op. c., 122. Type **saldaeformis** Uhler.

Tribe 22.—OLIGOBIELLINI.

Genus 1.—**Oligobiella** Reuter, 1885, Ent. Mo. Mag., xxi, 201. Type **fuliginea** (White), Reuter.

Tribe 23.—BOTHRIOMIRINI.

Genus 1.—**Bothriomiris** Kirkaldy, 1902, T. E. S. London, 270. Type **marmoratus** Kirkaldy, pl. 5, f. 9.†

Tribe 24.—SULAMITINI.

Genus 1.—**Sulamita** Kirkaldy, 1902, Fauna Hawaii., iii, 129. Type **lunalilo** Kirkaldy, pl. 4, figs. 12-14.†

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[19] My valued friend, Dr. Evald Bergroth, now of Hibbing, Minn., has kindly pointed out this synonymy to me.

Tribe 25.—THAUMASTOMIRINI.

Genus 1.—**Thaumastomiris** Kirkaldy, 1902, J. Bombay N. H. Soc., xiv, 56. Type **sanguinalis** Kirk, pl. A, f. 6 †

Tribe 26.—PERISSOBASINI.

Genus 1.—**Perissobasis** Reuter, 1892, A. S. E. F., lxi, 397. Type **aurora** Reuter.

The following genera are not described so as to admit of approximate location.

Genus 1.—**Ambracius** Stål (1860 ?), K. Svensk. Ak. Hand., 2, pt. 7, p. 59. Type **dufouri** Stål.

Genus 2.—**Demarata** Distant, 1884, B. C. A. Het., i, 303. Type **villosa** Distant, pl. 29, f. 14.†

Genus 3.—**Orasus** Distant, 1883, op. c., 248. Type **robustus** Distant, pl. 23, f. 13 †

Genus 4.—**Sysinas** Distant, l. c Type **linearis** Distant, pl. 31, f. 21. .†

Genus 5 —**Zopyrus** Distant, op. c., 249. Type **rubromaculatus** Distant, pl. 25, f. 8. †

Genus 6.—**Admetus** Distant, op. c., 250. Type **fimbriatus** Distant, pl. 25, f. 10.†

Genus 7.—**Ofellus** Distant, l. c. Type **praestans** Distant, pl. 25, f. 11.†

Genus 8.—**Angerianus** Distant, 1904, Faun. Brit. Ind. Rh., ii, 437. Type **fractus** Distant, f. 283. †

Genus 9.—**Nicostratus** Distant, op. c., 475. Type **balteatus** Dist., f. 307.†

Genus 10.—**Combalus** Distant, op. c., 431. Type **novitius** Distant, f. 276.†

Genus 11.—**Prodromus** Distant, op. c., 436. Type **subflavus** Dist., f. 282.†

Genus 12.—**Lucitanus** Distant, op. c., 465. Type **punctatus** Dist., f. 299.†

Genus 13.—**Zanchius** Distant, op. c., 477. Type **annulatus** Dist., f. 309.†

Genus 14.—**Gallobelicus** Distant, l. c. Type **crassicornis** Dist., f. 310.†

Genus 15.—**Lygdus** Distant, 1883, B. C. A. Het., i, 242. Type **simulans** Distant, pl. 24, f. 16.†

Genus 16.—**Pharyllus** Distant, 1904, Fauna Brit. Ind. Rh., ii, 434. Type **pistacinus** (Motsch.), Dist., f. 279.

Genus 17.—**Argenis** Distant, 1904, Ann. Mag. H. H. (7), xiii, 107 (type fig. in Distant, Faun. Brit. Ind. Rh., ii, f. 280†). (N. B.—Probably this is a Capsinian in which case the membrane has been incorrectly drawn.) Type **incisuratus** Distant.

Genus 18.—**Chius** Distant, 1884, B. C. A. Het., i, 297. Type **maculatus** Distant, pl. 27, f. 23.†

Genus 19.—**Parachius** Distant, op. c, 298. Type **luteolus** Dist., f. 24.†

Genus 20.—**Falconia** Distant, l. c. Type **caduca** Dist., pl. 29, f. 4. †

Genus 21.—**Antias** Distant, l. c. Type **subaeratus** Dist., pl. 29, f. 5.†

Genus 22.—**Fuscus** Distant, op. c., 299. Type **crinitus** Distant, pl. 29, f. 7.†

Genus 23.—**Neolucon** Distant, l. c. Type **horribilis** Dist., pl. 26, f. 24.†

Genus 24.—**Spartacus** Dist., op. c., 300. Type **albatus** Dist., pl. 26, f. 25.†

Genus 25 —**Trygo** Distant, l. c. Type **imitationis** Dist., pl. 29, f. 8.†

Genus 26.—**Jornandes** Distant, op. c., 301. Type **championi** Distant, pl. 29, f. 9.†

Genus 27.—**Florus** Distant, l. c. Type **insolitus** Dist., pl. 29, f. 10.†

Genus 28.—**Monalocorisca** Distant, op. c., 296. Type **granulata** Dist., pl. 27, f. 4.†

Genus 29.—**Carmelus** Distant, op. c., 297 = | *Carnus* Distant, op. c., 287. Type **lunatus** Distant, pl. 28, f. 6.†

Genus 30.—**Pseudocarnus** Distant, op. c., 288. Type **lineolatus** Dist., pl. 28, f. 8.†

Genus 31.—**Paracarnus** Distant, l. c. Type **elongatus** Dist., pl. 28, f. 25.†

Genus 32.—**Neocarnus** Distant, l. c. Type **vitreus** Dist., pl. 29, f. 1.†

Genus 33.—**Neofurius** Distant, op. c., 292 (ten species are figured on pl. 28). Type **affinis** Distant.

Genus 34.—**Bibaculus** Distant, op. c., 295. Type **modestus** Dist, pl. 28, figs. 23, 24.

Genus 35.—**Fingulus** Distant, 1904, Ann. Mag. N. H. (7), xiii, 275. Type **atrocaeruleus** Distant.

Genus 36.—**Mala** Distant, 1884, B. C. A. Het., i, 296. Type **unicolor** Dist., pl. 26, f. 22.†

Genus 37.—**Neosilia** Distant., op. c., 297 = | *Silia* Distant, op. c., 296. Type **cineracea** Distant, pl. 27, f. 22.†

Family 3.—CLINOCORIDÆ.

(= *Cimicidae* Leth. & Sev.)

Genus 1.—**Clinocoris** Fallén, 1829, Hem. Svec., 141 (= *Cimex* or *Acanthia* of many authors = *Punaise* Latreille, 1825, Fam. Nat., 423 = *Klinophilos* Kirkaldy, 1899, Entom., xxxii, 219 (the type is figured in †Douglas & Scott, Brit. Hem., pl. 17, f. 7). Type **lectularius** (L.).

Genus 2.—**Cacodmus** Stål, 1873, K. Svensk. Vet. Ak. Handl., xi, No. 2, 103. Type **villosa** (Stål), Stål.

Genus 3.—**Oeciacus** Stål, op. c., 104 (the type is figured in Jenyns, Ann. Nat. Hist., iii, pl. v, f. 21.) Type **hirundinis** (Jen.), Sâtl.

N. B.—Nos. 2 and 3 are doubtfully distinct generically from *Clinocoris*.

Genus 4.—**Hæmatosiphon** Champion, 1900, B. C. A. Het., ii, 337. Type **inodora** (Dugès), Champ., pl. 20, f. 1.

N. B.—*Polyctenes* Giglioli & Westwood probably forms a separate family here; *Pediculus* and its allies are too aberrant to be classed among the Heteroptera, at least at present.

Family 4.—AËPOPHILIDÆ.

Genus 1.—**Aëpophilus** Signoret, 1879, Bull. Soc. Ent. France, p. 73 (the type is figured by Signoret Tijdschr. Ent., xxiii, pl. 1, figs. 1 and 2). Type **bonnairei** Sign.

Family 5.—CERATOCOMBIDÆ.

(Monogr.: Reuter, 1891, Act. Soc. Sci. Fenn., xix, No. 6, pp. 1–28, pl.)

Subfamily 1.—CERATOCOMBINÆ.

Genus 1.—**Ceratocombus** Signoret, 1841, Ann. Soc. Ent. France, x, 542 = *Lichenobia* Baerensprung, 1857, Berlin Ent. Zeit., i, 165. Type *ferruginea* Baer. =*coleoptrata* Zett.). Type **mulsanti** Sign., pl. f. 3 (= *coleoptrata* Zett.).

Subg. 1.—LEPTONANNUS Reuter, 1891, Act. Soc. Sci. Fenn., xix, No. 6 5. Type **biguttulus** Reut., fig. 1.

Subg. 2.—TRICHOTONNANUS Reuter, op. c., 6. Type **setulosus** Reut., fig. 2.

Genus 2.—**Pachycoleus** Fieber, 1860, Wien. Ent. Mon., vi, 268. Type **Waltli** Fieb., pl. 6, f. U.

Genus 3.—**Dipsocoris** Haliday, 1855, Nat. Hist. Rev., ii, 61 (= ‖ *Cryptostemma* Meyer, 1843, Verz. Schweiz. Rhynchoten, i, 33.[20] Type **alienum** (H.-S.), Haliday, pl. 2, f. 3.

Genus 4.—**Crescentius** Distant, 1904, Faun. British Ind. Rhynch., ii, 408. Type **principatus** Dist., fig. !

Subfamily 2.—SCHIZOPTERINÆ.

Genus 1.—**Tropistotrochus** Reuter, 1891, Act. Soc. Sci. Fenn., xix, No. 6, 14. Type **ampliatipennis** Reut., f. 9. !

Genus 2.—**Schizoptera** Fieber, 1860, Wien. Ent. Mon., iv, 269. Type **cicadina** Fieb., pl. 6, f. W. !

Subg. 1.—NANNOCORIS Reuter, 1891, Act. Soc. Sci. Fenn., xix, No. 6, 18 [*tuberculifera* is figured (13) by Reuter, op. c. !]. Type **nebulifera** Reut.

Subg. 2.—CORIXIDEA Reuter, l. c. Type **lunigera** Reut., f. 14. !

Genus 3.—**Ommatides** Uhler, 1894, P. Zool. Soc. Lond., 159. Type **insignis** Uhler.

Genus 4.—**Ptenidiophyes** Reuter, 1891, Act. Soc. Sci. Fenn., xix, No. 6, 15. Type **mirabilis** Reut., f. 15. !

Genus 5.—**Hypselosoma** Reuter, l. c. Type **oculata** Reut., f. 16. !

Genus 6.—**Oncerodes** Uhler, 1894, P. Zool. Soc. Lond., 159. Type **robusta** Uhler.

Family 6.—ACANTHIIDÆ.

(= *Saldidae* Leth. & Sev.)

Subfamily 1.—ACANTHIINÆ.

Genus 1.—**Acanthia** Fabricius, 1775, Syst. Ent., 693=*Acanthie* Latreille, 1825, Fam. Nat., 23 (type figured in Hahn. Wanz. Ins., ii, f. 167). Type **saltatorius** (L.), Latreille, 1804.

Subg. 1.—SALDA Fabricius, 1803, Syst. Rhyng., 113 (type figured in Saunders Hem. Het. Br. Isl., pl. xvi, f. 8 as *S. littoralis*). Type **zosteræ** Fabr. (= *litoralis* Linn.) = *Sciodopterus* Amyot & Serville, 1843, Hem., 404. Type *flavipes* (Fabr.), Am. Serv. (= *oculata* Müll.).

Subg. 2.—CALACANTHIA Reuter, 1895, Act. Soc. Sci. Fenn., xxi, No. 2, 5. Type **trybomi** (J. Sahlb.) Reut. pl. 1, f. 4. !

Subg. 3.—CHARTOSCIRTA Stål, 1860, O. V. A. F., xxv. 393. Type **elegantula** (Fall), Reut., pl. 1, f. 11.

Genus 2.—**Saldoida** Osborn, 1901, Canad. Ent., xxxiii, 181. Type **slossoni** Osborn.

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[20] *Cryptostemma* H.-S. in Panzer, Faun. Germ., heft 135, was not described.

Subfamily 2.—VELOCIPEDINÆ.

Genus 1.—**Velocipeda** Bergroth, 1891, Wien. Ent. Zeit., x, 263 = *Godefridus* Distant, 1904, Faun. Brit. Ind. Rhynch., ii, 328.[21] Type *alienus* Distant, fig. ! (= *prisca* Bergr.). Type **prisca** Bergr., f. 1.

Subfamily 3.—LEPTOPODINÆ.

Genus 1.—**Leptopus** Latreille, 1810, Consid. Générales, 259 (type figured in Dufour Ann. Soc. Ent. France, ii, pl. 61, f. 2 as *littoralis*) = *Leptope* Latreille, 1825, Fam. Nat., 423 = *Valleriola* Distant, 1904, Faun. Brit. Ind. Rhynch., ii, 405. Type *greeni* Dist., fig. ! (= *assuanensis* Costa). (My friend, Dr. Bergroth, has obligingly mentioned this synonym to me.) Type **littoralis** (Latr.), Latr. (= *boopis* Geoff.).

Genus 2.—**Erianotus** Fieber, 1860, Europ. Hem., 40 (type figured in Dufour, Soc. Ent. France, iii, pl. 5, f. 14). Type **lanosus** (Dufour), Fieb.

Genera of Uncertain Position.

Genus 1.—**Leotichius** Distant, Faun. Brit. Ind. Rhynch., ii, 406. Type **glaucopis** Dist., fig. !

Family 7.—OCHTERIDÆ.

Genus 1.—**Ochterus** Latreille, 1807, Gen. Crust. Ins., iii, 142 = *Pelogonus* Latreille, 1809, op. c., iv, 384 = *Pelogone* Latreille, 1825, Fam. Nat., 423 = *Pelegonus* Laporte, 1832, Essai Hém., 6 = || *Ochthera* and *Ochtherus* Bergroth, 1890, Bull. Soc. Ent. France, p 66 = *Octherus* Bergroth, 1890, op. c., p. 119 (type is figured in H.-S., Wanz Ins., ix, f. 892). Type **marginata** (Latr.), Latr.

Genus 2.—**Peloridium** Breddin, 1897, Hamburg. Magalh. Sammelsreise Hem., 12 = † *Nordenskjoeldiella* Haglund, 1899, Svenska Exped. Magellanlaend., ii, 176 Type *insignis* Haglund = *hammoniorum* Breddin. Type **hammoniorum** Breddin, fig. 4.

Family 8.—NERTHRIDÆ.

Subfamily 1.—GELASTOCORINÆ.

Genus 1.—**Gelastocoris** Kirkaldy, 1897, Entom., xxx, 258 = || *Galgulus* Latreille, 1802, Hist. Nat. Ins., iii, 253 = *Galgule* Latreille, 1825, Fam. Nat., 424 (the type is figured in Latreille, Hist. Nat., xii, pl. 95, f. 9. !). Type **oculata** (Fabr.), Kirkaldy.

Subf. 2.—NERTHRINÆ.

Genus 1.—**Mononyx** Laporte, 1832, Essai Hém., 15 (type figure Herr. Sch., Wanz. Ins., ix, f. 896 = *Phintius* Stål, 1861, O. V. A. F., xviii, 201 (type figured H.-S. Wanz. Ins. ix, f. 893 as *M. sordidus*). Type *grandicollis* (Germ.), Stål. Type **raptoria** (F.), Lap.

Genus 2.—**Matinus** Stål, l. c. Type **alaticollis** (Stål), Stål.

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[21] Described as belonging to the *Apiomerinæ*, a subfamily of the Trochalopodous Reduviidæ.

Genus 3.—**Peltopterus** Guérin, 1843, Revue Zool., 113 = *Scylaecus* Stål., 1861, O. V. A. F., xviii. 201. Type *macrothorax* (Montr.), Stål. Type **rugosa** (Desj.). Guér.

Genus 4.—**Nerthra** Say, 1832, Descr. New Species Het. Hem. (New Harmony), p. 809 of Fitch reprint (type figure Bueno Ohio Nat., v, 288, text f. 1). Type **stygica** (Say), Say.

Family 9.—NAUCORIDÆ.

Subfamily 1.—APHELOCHEIRINÆ.

Genus 1.—**Aphelocheirus** Westwood, 1833, Mag. Nat. Hist., vi, 229 = *Aphelochira* Fieber, 1852, Abh. böhm. Ges Wiss. (5), 7, 195, pl. 1, D (type figure Westw., Intr. Mod. Class. Ins. Frontisp., f. 7) = *Aphelochirus* Puton, 1880, Syn. Hém. Hét. France, 210. Type **aestivalis** (Fabr.), Westw.

Subf. 2.—CHEIROCHELINÆ.

Genus 1.—**Cheirochela** Hope, 1840, Tr. Linn. Soc. Lond., xviii, 442 = *Chirochela* Fieber, Abh. böhm. Ges. Wiss. (5), 7, 197 Type **assamensis** Hope.

Genus 2.—**Gestroiella** Montandon, 1897, Ann. Mus. Genova, xxxvii, 371. Type **limnocoroides** Mont.

Subfamily 3.—NAUCORINÆ.

Genus 1.—**Limnocoris** Stål, 1860, K. Vet. Ak. Handl., ii, No. 7, 83 (*L. signoreti* Mont. is figured in Champion, B. C. A. Het, ii, pl 21, f. 13) = *Borborocoris* is Stål, 1861, O. V. A. F., xviii, 202 [*B. profundus* (= *L. Stâli*) is figured in Champion, pl. 21, f. 12]. Type *pallescens* Stål. Type **insignis** Stål.

Genus 2.—**Aneurocoris** Montandon, 1897, Verh. Zool. bot. Ges. Wien, xlvii, 435. Type **insolitus** Mont.

Genus 3.—**Temnocoris** Montandon, op. c., 436. Type **translucidus** Mont.

Genus 4.—**Diaphorocoris** Montandon, 1897, Ann. Soc. Ent. Belg. xli, 61. Type **notatus** Mont. (= *punctatissima* Kirby).

Genus 5.—**Heleocoris** Stål, 1876, K. Svensk. Vet. Ak. Handl., 14, No. 4, 142. Type **obliquata** (Spin.), Stål.

Genus 6.—**Ctenipocoris** Montandon, 1897, Ann. Mus. Genov., xxxvii, 373. Type **asiaticus** Mont.

Genus 7.—**Laccocoris** Stål, 1856, O. V. A. F., xiii, 198. Type **spurcus** (Stål), Stål.

Genus 8.—**Ilyocoris** Stål, 1861, op. c., xviii, 201 (type fig. Douglas & Scott, Brit. Hem., pl. 19, f. 6). Type **cimicoides** (L.), Stål.

Genus 9.—**Pelocoris** Stål, 1876, K. Svensk. Vet. Ak. Handl., 14, No. 4, 142 (Type fig. in Champion, B. C. A. Het., ii, pl. 21, f. 17). Type **femorata** Pal. B.

Genus 10.—**Naucoris** Geoffroy, 1762, Hist. Abrég., i, 473 = *Naucore* Latreille, 1825, Fam. Nat, 424 (type fig. Kirkaldy, Entom., xxxviii, pl. 2, f. 35). Type **cimicoides** Geoffr. (= *maculata* Fabr.).

Genus 11.—**Macrocoris** Signoret, 1861, Ann. Soc. Ent. France (3), viii, 970. Type **flavicollis** Sign.

Genus 12.—**Aptinocoris** Montandon, 1897, Ann. Soc. Ent. Belg., xli, 64. Type **papuus** Mont.

Genus 13.—**Pseudambrysus** Montandon, 1897, Verh. Zool. bot. Gess. Wien., xlvii, 6. Type **fairmairei** Mont.

Genus 14.—**Cryphocricos** Signoret, 1850, Rev. Mag. Zool., 289 = *Cryptocricus* Stål, 1876, K. Svensk. Vet. Ak. Handl., 14, No. 4, 141 = *Cryphocricus* Mayr., 1866, Novara Reise Hem., 182. Type **barozzi** Signoret, pl. 4, f. 10. !

Genus 15.—**Idiocarus** Montandon, 1897, Verh. Zool. bot. Ges. Wien, xlvii, 6. Type **elongatus** Mont.

Genus 16.—**Ambrysus** Stål, 1862, Stettin. Ent. Zeit, xxiii, 459 (type fig. in Champion, B. C. A. Het., ii, pl. 21, f. 11). Type **signoreti** Stål.

Family 10.—BELOSTOMATIDÆ.

Genus 1.—**Benacus** Stål, 1862, O. V. A. F., xix, 205 (type fig. in Riley, Proc. Ent. Soc. Wash., iii, text fig. 5 [on p. 86]). Type **haldemanum** (Leidy), Stål (= *grisea* Say).

Genus 2.—**Amorgius** Stål, 1865, Hem. Afr., iii, 179 type fig. in Champ., B. C. A. Het., ii, pl. 22, f. 4). Type **colossicum** Stål (=*Collosicum* Stål).

Subg. 1.—MONTANDONISTA Kirkaldy, 1901. Entom., xxxiv, 6 (type fig. in Riley, op. c., fig. 4 [on p. 85]) = || *Belostoma* auctt. olim = *Belostomum* Burmeister, 1835, Handb. Entom., ii, 195 = *Belostome* Latreille, 1825, Fam. Nat., 425. Type **americanum** (Leidy), Kirkaldy.

Genus 3.—**Abedus** Stål, 1862, Stettin. Ent. Zeit., xxiii, 461 (type fig. in Champion, B. C. A. Het., ii, pl. 21, f. 19) = *Stenoscytus* Mayr, 1863, Verh. Zool. Gess. Wien., xiii, 341. Type *mexicanus* Mayr (= *ovatus* Stål). Type **ovatus** Stål.

Subg. 1.—PEDINOCORIS Mayr, 1863, l. c. Type macronyx Mayr., pl. 11, f. 1–4. !

Subg. 2.—DEINOSTOMA Kirkaldy, 1897, Entom., xxx, 258=*Serphus*, Stål, 1862, Stett. Ent. Zeit., xxiii, 462 (type fig. in Champion, B. C. A. Het. ii, pl. 21, f. 18). Type dilatata (Say), Kirkaldy.

Genus 4.—**Belostoma** Latreille, 1807, Gen. Crust. Ins., iii, 144 (*B. boscii* fig. in Champion, B. C. A. Het., ii, pl. 22, f. 1 as *Zaitha anura*) = *Zaitha* Amyot & Serville, 1843, Hém., 430. Type *stollii* Am. & S.* (=*testataceopallidum* Latr.) = *Perthostoma* Leidy, 1847, Jour. Ac. Nat. Sci. Phila., n. s., i, 59. Type *testaceum* Leidy. Type **testaceopallidum** Latreille.

Genus 5.—**Diplonychus** Laporte, 1832, Essai Hém., 17 (type fig. in Fieber, 1852, Abh. böhm. Ges. Wiss. (5), 7, Gen. Hydroc., pl. 2, A) *Sphaerodema* Laporte, l. c. Type *rotundata* Lap. (type fig. by Fieber, op. c., B) = † *Atomya* Spinola, 1850, Mem. Matem. Soc. Modena, xxv, p. ?= || *Cyclodema* Dufour, 1863, Ann. Soc. Ent. France (4), iii, 397 = *Nervinops* Dufour, op. c., 398.[22] Type *rotundata* (Lap.), Dufour. Type **rustica** (Fabr.), Lap.

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[22] The synonymy of the genus 5 is very confused, Montandon dropped *Diplonychus* altogether, but as *Sphaerodema* or *Sphoerodema*, as it is incorrectly written, was erected as a subgenus of *Diplonychus*, it seems that the former should stand, even though it was incorrectly described first.

Subg. 1.†AMYOTELLA Spinola, 1850, op. c., p. 49 = *Appasus* Am. & Serv. 1843, Hem., 430 = *Apassus* Puton, 1886, Cat. Hém. paléart. ed. 3. Type **natator** Am. & Serv.

Genus 6.—**Limnogeton** Mayr, 1852, Verh. Zool. bot. Ges. Wien., ii, 15 = *Borborotrephes* Stål, 1854, O. V. A. F., xi, 239 (type fig. in Stål, op. c., xiii, pl. 1, f. 5). Type **hedenborgi** Stål (= *fieberi* Mayr).

Genus 7.—†**Hydrocyrius** Spinola, 1850, Mem. Matem. Soc. Modena, xxv, 146 (type fig. in Dufour, Mém. Soc. Ac. Sci. Liège, x, pl. 1, f. 1, as *Belostoma algeriense*) = *Lethocerus* Mayr, 1852, Verh. Zool. bot. Ges., ii, 15. Type *cordofanus* Mayr, fig. ! (= *columbiae* Spin.) = *Ilyotrephes* Stål, 1853, O V. A. F., x, 264 = *Ilyotrephis* Gerstaecker, 1855, Bericht, Ent., 1853, 95. Type *herculeus* Stål (= *columbiae* Spin.). Type **columbiae** Spinola.

Genus 8.—**Nectocoris** Mayr, 1871, Verh. Zool. bot. Ges. Wien., xxi, 402. Type **ståli** Mayr.

Family 11.—CORIXIDÆ.

Genus 1.—**Micronecta** Kirkaldy, 1897, Entom., xxx, 260 (type fig. H.-S., Wanz. Ins., ix, f. 907) = || *Sigara* auctt. Type **minutissima** (L.), Kirkaldy.

Genus 2.—**Tenagobia** Bergroth, 1899, Ent. Mo. Mag., xxxv, 282 (*T. socialis* is fig. in Champion, B. C. A. Het., ii, pl. 22, f. 27). Type **marmorata** Bergr.

Genus 3.—**Cymatia** Flor, 1860, Arch. für Naturh. Livlands (2), iii, 783 (type details Kirkaldy, 1901, J. Quekett, Micr. Club (2), viii, pl. 3, fig. 5). Type **coleoptrata** (Fabr.), Kirkaldy, 1898.

Genus 4.—**Glaenocorisa** Thomson, 1869, Opusc. Ent., 39 (type details Kirkaldy, op. c., figs. 8-11) = *Oreinocorixa* F. B. White, 1873, Ent. Mo Mag. x, 63. Type *alpestris* (D. & S.), White (= *cavifrons* Thoms.). Type **cavifrons** Thoms.

Genus 5.—**Callicorixa** F. B. White, op. c., 62 = *Callicorisa* Puton, Syn. Hém. Hét. France, 232 (type fig Fieber, Abh. bohm. Ges. Wiss. (5), 7, species gen. Corisa, pl. 1, f. 17, Nos. 1–18). Type **praeusta** (Fieb.), Kirkaldy, 1898.

Genus 6.—**Agraptocorixa** Kirkaldy, 1898, Ann. Mus. Genova, xxxix, 144. Type **gestroi** Kirkaldy.

Genus 7.—**Arctocorisa** Wallengren, 1894, Ent. Tidskr., x, 133 (type details Kirkaldy, 1901, J. Quekett, Micr. Club (2), viii, pl. 4, f. 23) = *Glaenocorisa* Puton, 1880, Syn. Hém. Hét. France, 234. Type *carinata* (J. Sahlb.), Puton = *Basileocorixa* Kirkaldy, 1898, Entom., xxx, 252 (type detail Kirkaldy, J. Quekett (2), viii, pl. 24, f. 23) = || *Corisa* Thomson, 1869, Opusc. Ent., 27 (nec Am. & S.)= || *Corixa* F. B. White, 1873, Ent. Mo. Mag., x, 62 (nec. Geoffroy). Type *striata* (L.), Kirkaldy. Type **carinata** (J. Sahlb.), Kirk., 1898.

Genus 8.—**Corixa** Geoffroy, 1762, Hist. abregée, i, 477 (type details, Kirkaldy, J. Quekett Club (2), viii, pl. 3, figs. 1–4 and 7, pl. 4, figs. 34–35) = *Sigara* Fabricius, 1775, Syst. Ent., 691 = *Corisa* Latreille, 1825, Fam. Nat., 426. Type *striata* Fabr. (*geoffroyi* Leach) *Corisa* Amyot & Serville, 1843, Hém., 445 = *Macrocorisa* Thomson, 1869, Opusc. Ent., 28 = *Macrocorixa* F. B. White, 1878, Ent. Mo. Mag., x, 62. Type *geoffroyi* Leach. Type **striata** Geoffr. (= *geoffroyi* Leach).

Genus 9.—**Heterocorixa** F. B. White, 1879, Trans. Ent. Soc. Lond., 272. Type **hesperia** White.

Genus 10.—**Diaprepocoris** Kirkaldy, 1897, Ann. Mag. Nat. Hist. (6), xx, 52. Type **barycephala** Kirkaldy.

Family 12.—NOTONECTIDÆ.

Rev.: Kirkaldy, 1904, Wien. Ent. Zeit., xxiii, 93-135 (fig.).

Subfamily 1.—NOTONECTINÆ.

Genus 1.—**Notonecta** Linné, 1758, Syst. Nat. Ed., x 439 = *Notonecte* Latreille, 1825, Fam. Nat., 426 (type fig. † Douglas & Scott, Brit. Hem., pl. xx, fig. 4. Type **glauca** L., Fabr., 1794.

Genus 2—**Enithares** Spinola, 1837, Essai Hém., 60 (*E. grandis* is fig. in H.-S., Wanz. Ins., ix, f. 901) = *Bothronotus* Fieber, 1852, Abh. böhm. Ges. Wiss. (5), vii, 206, pl. 4, A = *Enithara* Signoret, 1860, Ann. Soc. Ent. France (3), viii, 971. Type **indica** (Fabr.), Kirk., 1897 [= *abbreviata* (Kirby), Kirk.]

Genus 3.—**Anisops** Spinola, op. c., 58. Type **nivea** Spin. (= **sardea** H.-S., Wanz. Ins., ix, fig. 904).

Genus 4.—**Buenoa** Kirkaldy, 1904, Wien. Ent. Zeit., xxiii, 120 (type fig. Champion, B. C. A. Het., ii, pl. 22, fig 12, as *carinatus*). Type **antigone** Kirkaldy.

Genus 5.—**Nychia** Stål, 1859, Eugenie's Resa, iii, 268 = *Antipalocoris* Scott, 1872, Ent. Mo. Mag., viii, 244. Type *marshalli* Scott. Type **limpida** Stål, pl. iii, f. 8.

Genus 6.—**Martarega** F. B. White, 1879, Tr. Ent. Soc. Lond., 271 = *Signoretiella* Berg, 1883, An. Soc. Cient. Arg. xvi, 124. Type *uruguayensis* Berg (= *membranacea* White). Type **membranacea** White.

Subfamily 2.—PLEINÆ.

Genus 1.—**Plea** Leach, 1817, Tr. Linn. Soc. London, xii, 11 = *Ploa* Stephens, 1829, Cat. Brit. Hem. = *Ploea* Douglas & Scott, 1876, Cat. Brit. Hem. 61 (type fig. Fieber, Abh. böhm. Ges. Wiss. (5), 7, pl. 4, B, etc.. Type **minutissima** Fabr. (= *leachi* McGreg. and Kirk.).

Genus 2.—**Helotrephes** Stål, 1859, Eugenie's Res., iii, 267. Type **semiglobosus** Stål, pl. 3, f. 7. !

Division B.—TROCHALOPODA.

Family 1.—NEPIDÆ.

Genus 1.—**Nepa** Linné 1758, Syst. Nat., Ed. x, 440 = *Hepa* Geoffroy, 1762, Hist. abregée. i, 411 = *Nepe* Latreille, 1825, Fam. Nat., 425 (type fig. in Fieber, 1852, Abh. böhm. Ges. Wiss. (5), 7, Gen. Hydr., pl. iii, A). Type **cinerea** (L.), Lamarck, 1801.

Genus 2.—**Laccotrephes** Stål, 1866, Hem. Afr., iii, 186 (*L. maculata* is fig. in Guérin Icon. Regne Anim., pl. 57, f. 7). Type **atra** (L.).

Genus 3.—**Telmatotrephes** Stål, 1854, O. V. A. F., xi, 241. Type **sculpticollis** Stål.

Genus 4.—**Borborophyes** Stål, 1870, op. c., xxvii, 706. Type **mayri** Stål.

Genus 5.—**Borborophilus** Stål, 1866, Hem. Afr., iii, 185. Type **afzelii** (Stal), Stål.

Genus 6.—**Curicta** Stål, 1861, O. V. A. F., xviii, 263 (type fig. in Champion, B. C. A. Het., ii, pl. 21, f. 1 !) = *Helotenthes* Berg, 1879. Hem. Arg., 194. Type *bonaerensis* Berg, = *Nepoidea* Montandon, 1895, Ann. Soc. Ent. Belg., xxxix, 476, f. 6 !. Type *volxemi* Montandon. Type **scorpio** Stål.

Genus 7.—**Ranatra** Fabricius, 1790, Skrift. Nat. Selsk., i, 213 (type fig. in Curtis, Brit. Ent., pl. 281). Type **linearis** (L.), Latr., 1802.

Genus 8.—**Amphischizops** Montandon, 1898, Bull. Soc. Sci. Bucarest, vii, 58. Type **compressicollis** (Montandon), Mont., text fig. !

Genus 9.—**Cercotmetus** Amyot & Serville, 1843, Hém., 441 (*C. pilipes* is fig. in Dallas, 1849, Trans. Ent. Soc. Lond. (2), i, pl. 2, f. 6). Type **asiaticus** Am. Serv.

Family 2.—GERRIDÆ.

Subfamily 1.—VELIINÆ.

Genus 1.—**Velia** Latreille, 1804, Nouv. Dict. Hist. Nat., xxiv, Tabl. Méthod, pp. 163–168 (type fig. in Wolff, Icon. Cim., pl. 20, f. 195). Type **rivulorum** (Fabr.), Latr., 1810.

Subg. 1.—PARAVELIA Breddin, 1898, J. B. Nat. Ver. Magdeburg, ii (*basalis* is fig. in H S, Wanz. Ins., ix, f. 935 as *brasiliensis*). Type **boliviana** Breddin.

Genus 2.—**Perittopus** Fieber, 1860, Eur. Hem., 33 (*rufus* Distant, fig. in Dist. Faun. Brit. Ind. Rhyn., ii, f. 128). Type **breddini** Kirkaldy.

Genus 3.—**Rhagovelia** Mayr, 1865, Verh. zool. bot. Ges. Wien., xv, 445 (*ravana* Kirkaldy, fig. in Distant, Faun. Brit. Ind. Rh., ii, f. 124) = *Baecula* Stål, 1865, Hem. Afr., iii, 167. Type *nigricans* (Burm.) = *Neovelia* F. B. White, 1879, J. Linn. Soc. Lond. Zool., xiv, 487 Type *traili* White = *Trochopus* Carpenter, 1898, Ent. Mo. Mag., xxxiv, 78, pl. 3. Type *marinus* Carpenter (= *plumbea* Uhler). Type **nigricans** (Burm.), Kirkaldy, 1901.

Genus 4.—**Angilia** Stål, 1867, Hem. Afr., iii, 167. Type **albidotincta** (Stål), Stål.

Genus 5.—**Macrovelia** Uhler, 1872, Hayden's Geol. Surv. Montana, 422. Type **hornii** Uhler.

Genus 6.—**Ochthecorisa** Montrouzier, 1864, Ann. Soc. Linn. Lyon, xi, 231. Type **austrocaledonica** Montr.

Genus 7.—**Halovelia** Bergroth, 1893, Ent. Mo. Mag., 277. Type **maritima** Bergroth.

Genus 8.—**Microvelia** Westwood, 1834, Ann. Soc. Ent. Fr., iii, 647 = *Hydroessa* Burmeister. 1835, Handb. Ent., ii, 213. Type *reticulata* Burm. (= *pygmaea* Dufour) = *Veliomorpha* Carlini, 1895, Ann. Mus, Genova, xxxv, 120. Type *maculata*. Type **pygmaea** (Dufour), Westwood, pl. 5, f. 6.

Genus 9.—**Baptista** Distant, 1904, Faun. Brit. Ind. Rh., ii, 173. Type **gestroi** Distant, f. 126.

Subfamily 2.—GERRINÆ.

Genus 1.—**Gerris** Fabricius, 1794, Ent. Syst., iv, 188 = *Hydrometra* Fabricius, 1803, Syst. Rhyng., 256 = *Limnotrechus* Stål. 1868, O. V. A. F., xxv, 395 (type fig. in H. S., Wanz. Ins., ix, f. 930). Type *lacustris* (L.). Type **lacustris** (Linn), Fabr.

Subg. 1.—AQUARIUS Schellenberg, 1800, Cimic. Helv., 25 = *Hygrotrechus* Stål, l. c. (= *canalium* Dufour). Type *najas* Stål (type fig. in Schummel, Beitr. z. Ent., ii, pl. 4, f. 4, as *aptera*). Type **paludum** Schell. (= *canalium* Dufour).

Subg. 2.—TENAGOGONUS Stål, 1853, O. V. A. F., x, 263 = *Limnometra* Mayr, 1865, Verh. zool. bot. Ges. Wien., xv, 444 (*minuta* Mayr, fig. in Mayr, Reise Novara Hem., f. 54). Type *femorata* Mayr. Type **albovittatus** Stål, 1855.

Subg. 3.—LIMNOPORUS Stål, 1868, O. V. A. F., xxv, 395 (type fig in H. S., Wanz. Ins., ix, f. 924). Type **rufoscutellata** (Latr.), Stål.

Subg. 4.—LIMNOGONUS Stål, 1868, Svensk. Vet. Ak Forh., xii, 132 (type fig. in Champion, B. C. A. Het., ii, pl. 9, f. 18) = *Lamprotrechus* Reuter, 1882, Ofv. Finsk. Vet. Forh., xxv, 40 Type *leptocera* Reuter Type **hyalina** (Fabr.), Stål.

Genus 2.—**Eotrechus** Kirkaldy, 1902. Entom., 137 (type fig. in Distant, Faun. Brit. Ind. Rh , ii, f. 130). Type **kalidasa** Kirkaldy.

Genus 3.—**Onychotrechus** Kirkaldy, 1903, Entom., 44 (type fig in Distant, op. c., f. 131). Type **rhexenor** Kirkaldy.

Genus 4.—**Cylindrostethus** Fieber, 1860, Eur. Hem., 33 (type fig. in Mayr Reise Novara, f.) = || *Hydrobates* Erichson, 1848, in Schomburgk Faun. Brit. Guiana, iii, 614. Type *linearis* Erichson (*erythropus* is fig. in H. S., Wanz. Ins., ix, f. 923). Type **fieberi** Mayr, 1865 (= *producta* Spinola).

Genus 5.—**Ptilomera** Amyot & Serville, 1843, Hém , 413 Type **laticauda** Am. & Serv., pl. 8, f. 3 (= *laticaudata* Hardwicke).

Genus 6.—**Heterobates** Bianchi, 1896, Ezheg. Zool. Mus. Peterb., i, 74. Type **dohrandti** Bianchi.

Genus 7.—**Hymenobates** Uhler, 1894, P. Z. S. Lond , 214. Type **imitator** Uhler.

Genus 8.—**Metrobates** Uhler, 1873, Proc. Bost. Soc. N. H., xiv, 108 Type **hesperius** Uhler.

Genus 9.—**Platygerris** F. B. White, 1883, Ent. Mo. Mag., xx. 36 type fig. in Champion, B. C. A. Het., ii, pl. 9, figs. 23-24 . Type **depressa** White.

Genus 10.—**Potamobates** Champion, 1898, B. C. A. Het., ii, 154. Type **unidentatus** Champion. pl. 9, f. 20.

Genus 11.—**Brachymetra** Mayr, 1865, Verh. zool. bot. Ges. Wien , xv, 445 (type fig. in Mayr, Reise Novara Hem., f 55 . Type **albinervus** A. & S.), Mayr.

Genus 12 —**Charmatometra** Kirkaldy, 1899. Ann. Soc. Ent. Belg., xlviii, 509. Type **bakeri** (Kirk.), Kirk.

Genus 13.—**Telmatobates** Berg, 1898, Comun. Mus. Nac. Buenos Aires, i, 4. Type **bonairensis** Berg.

Genus 14.—**Trepobatopsis** Champion, 1898, B. C. A. Het., ii, 157. Type **denticornis** Champion, pl. 9, f. 26.

Genus 15.—**Kallistometra** Kirkaldy, 1899, Ent., xxxii. 28. Type **taylori** Kirkaldy.

Genus 16.—**Rheumatometra** Kirkaldy, 1902, op. c., xxxv, 281. Type **philarete** Kirkaldy.

Genus 17.—**Halobatopsis** Bianchi, 1896, Ezheg, Zool. Mus. Peterb., i, 70. Type **platensis** (Berg), Bianchi.

Genus 18.—**Potamometra** Bianchi, op. c., 71. Type **berezowskii** Bian.

Genus 19.—**Trepobates** Uhler, 1894, P. Z. S. Lond., 213 = || *Stephania* F. B. White, 1883, Voy. Challenger Zool., vii, 79. Type **picta** (H. S., Wanz. Ins., viii, fig. 882–883), Uhler.

Genus 20.—**Rheumatobates** Bergroth, 1892, Ins. Life, iv, 321 [type fig. in Insect Life (1891), iv, p. 199, text fig. 22 without name]. Type **rileyi** Bergroth.

Genus 21.—**Hermatobates** Carpenter, 1891, Sci. Proc. R. Dublin Soc., 142. Type **haddoni** Carpenter, pl. 12, figs. 4–8.

Genus 22.—**Hermatobatodes** Coutière & Martin, 1901, C. R. Acad. Sci. Paris, cxxxiii, 1066. Type **djiboutensis** Cout. & Mart.

Genus 23.—**Chimarrhometra** Bianchi, 1896, Ezheg. Zool. Mus. Peterb., i, 71 (type fig. in Distant, 1879, Res. 2d Yarkand Miss. Rh., pl. 12, figs. 11–12). Type **orientalis** (Dist.), Bianchi.

Genus 24.—**Metrocoris** Mayr, 1865, Verh. zool. bot. Ges. Wien , xv, 445 (type fig. in Mayr, Reise Novara Hem., f. 56) = *Halobatodes* F. B. White, 1883, Voy. Challenger Zool., vii, 23. Type *stâli* Dohrn. Type **brevis** Mayr (= *stâli* Dohrn).

Genus 25.—**Halobates** Eschscholtz, 1823, Nat. Abh. Dorpat, i, 163, pl. 2, f. 3 (apparently issued privately as a separate paper in 1822). Type **micans** Esch., Laporte, 1832.

Subfamily 3.—MESOVELIINÆ.

Genus 1.—**Mesovelia** Mulsant & Rey, 1852, Ann. Soc. Linn. Lyon, 138 = || *Fieberia* Yakovlev, 1874, Trudy Russk. Ent., vii, 32 Type **fuscata** M. & R., pl. —, f. —, *lacustris* Yak., pl. 1, f. 1 (= *fuscata* M. & R.).

Subfamily 4.—HYDROMETRINÆ.

Genus 1.—**Hydrometra** Latreille, 1796, Précis, Charact. Gen. Ins, 86 (type fig. in H. S., Wanz. Ins., ix, f. 938) = *Limnobates* Burmeister, 1835, Handb. Ent., ii, 210. Type **stagnorum** (L.), Lam., 1801.

(N. B.—*Hemidiptera* Léon, 1890, does not belong to the Gerridæ).

Family 3.—NAEOGEIDÆ.

[Probable offshoot of Pyrrhocoridæ (sens. lat.)]

Genus 1.—**Naeogeus** Laporte, 1832, Essai, 32 = *Hebrus* Curtis, 1833, Ent. Mag., i, 198. Type *pusillus* (Fall.), Curtis (type fig. in Westwood, An. Soc. Ent. Fr., iii, pl. 6, f. 6). Type **erythrocephalus** Lap. (= *pusillus* Fallen var.).

Genus 2.—**Merragata** F. B. White, 1877, Ann. Mag. Nat. Hist. (4), xx, 113 (type fig. in Champion, B. C. A. Het., ii, pl. 8, f. 7) = *Lipogomphus* Berg., 1879, Hem. Argent., 286, *lacuniferus* Berg. Type **hebroides** F. B. White.

NOTE.—I have to thank my friend Mr. J. R. de la Torre Bueno very sincerely for his kindness in seeing this list through the press, a labor of no small amount.—GEORGE W. KIRKALDY.

ADDITIONS.

Since this paper was in the press, the "Zoological Record" for 1904 has been published, and I have become aware of some papers previously unknown to me. It will be therefore necessary to insert the following, mostly on the authority of the "Record."

Page 124.—Genus 27a.—†**Nyctidea** Reuter, 1904, Oefv. Finsk. Förh., xlvi, No. 4, p. 15. Type **moesta** Reuter.

Page 128.—Genus 34.—**Campylotropis** Reuter. 1904, Russk. entom. obosr., iv, 35. Type **jakovlevi** Reuter.

Page 132.—Genus 2a.—†**Glossopeltis** Reuter, 1904, Oefr. Finsk. Förh., xlv, No. 6, p. 13. Type **coutieri** Reuter, pl. 1, f. 3. ♂

Page 133.—Genus 16a.—†**Glaphyrocoris** Reuter. op. c., p. 15. Type **unifasciatus** Reuter, pl. 1, f. 4.♀

Page 133.—Genus 16b.—†**Aeolocoris** Reuter, op. c., p. 17. Type **alboconspersus** Reuter, pl 1 f. 5.♀

Page 134.—Genus 10a.—†**Ropaliceschatus** Reuter, op. c., No. 16, p. 1. Type **quadrimaculatus** Reuter, pl. 2, f. 1.♀

Page 139.—Genus 67a.—†**Liocoridia** Reuter, op. c., p. 13. Type **mutabilis** Reuter, pl. 2, f. 4.♀

Page 140.—Genus 76a.—†**Cyphodemidea** Reuter, op. c., p. 17. Type **variegato** Reuter, pl. 2, f. 5.♀

Page 146.—(b) position unknown to me.—Genus 38 —†**Agraptocoris** Reuter, 1904, op. c., xlvi, No. 4, p. 6. Type **concolor** Reuter.

Page 146.—Genus 39.—†**Pleuraxonotus** Reuter, op. c., p. 7. Type **nasutus** Reuter.

Page 146.—(c) probably forming separate tribe.—Genus 40.—**Mevius** Distant, 1904, Faun. Brit. Ind. Rhynch., ii, 453. Type **lewisi** Dist., f. 292.♀

Page 150.—Genus 11a.—**Thurselinus** Distant, 1904, Entom., xxxvii. 259. Type **greeni** Dist.

N. B.—The "Zoological Record" for 1904 omits *Isabellina* Blanford (142), and *Baptista* Distant (154) and incorrectly spells *Bilia* Distant (131) "*Hilia*."

CORRECTIONS.

Page 118, line 5, for ACAN- *read* AN-.
" 119, " 7, " *chormerius* read *chomerus.*
" 119, " 4 from bottom, for is *read* in.
" 120, genus 15, after "Reuter" add "1871."
" 122, for "*Plagiogastharia*" read "*Plagiognatharia.*"
" 123, genus 21, for "**aethi-**" read "**aethiops.**"
" 124, genus 28, insert || before "*Strongylotes,*" and for "**satiens**" read "**saliens.**"
" 124, insert "44" before "**Phylus.**"
" 126, genus 16, for "**Malthacosma**" read "**Malthacosoma.**"
" 132, genus 16, for "xlvi, No. ?" *read* "xlvi, No. 10."
" 132, foot-note 11, for "sep. !" *read* "sep. ?"
" 133, **Myrmecopeplus** add "1883" after "Berg."
" 135, for "BRYOCORININ" read "BRYOCORINI."
genus 29, the Zool. Record cites p. 12.
" 140, genus 60, for "**Characochilus**" read "**Charagochilus.**"
" 142, genus 113, for "*Thyrilus*....267" read "*Thyrillus*....266."
" 143, genus 139, delete entry and read **Aphanosoma** Costa, 1841, A. S. E. France, x, 294 = *Gryllocoris* Baerensprung, 1859, Berlin Ent. Zeit., 334. Type *angusticollis* Baer., pl. 6, f. 8.† Type **italicum** Costa (fig. in (1855 ?) Atti. R. ist. inc. Nat. Sci. Napol. (? vol.), pl. 2, f. 1.†).
" 144, genus 10, for "**argillgceus**" read "**argillaceus.**"
" 145, genus 8, delete the whole entry; and **Hydemannia**, after "Uhler" add "1891."
" 145, add genus 24, **Saturniomiris** Kirkaldy, 1902, Tr. E. S. London, 268. Type **tristis** (Walker), Kirkaldy.
" 146, genus 15, insert "||" before "**Lygdus**" and rename "**Mimoncopeltus.**"
" 146, genus 15, **Lygdus** Distant is preoccupied (by Fabricius, 1792); I therefore propose **Mimoncopeltus** n. n. on account of its superficial resemblance to the *Geocorid* genus *Oncopeltus.*
" 148, for "TRICHOTONNANUS" read "TRICHOTONANNUS."
" 149, **Leotichius,** after "Distant," add "1904."
" 151, genus 5, etc. I have now secured a copy of Spinola's scarce work, but only the separate issue of 1850. The Mem. Matem. Soc. Modena, vol. xxv, are cited by Hagen as published in 1852, but probably the first part appeared in 1850. The correct references seem to be as follows: in genus 5 *Atomya* p. 88, [sep. 48!] no type, and on p. 148 [108 !] reduced as a synonym of "*Sphaerodema.*"
" 152, AMYOTELLA p. 89 [49 !] should be cited as a synonym of *Appasus* No type is recorded by Spinola, and on p. 148 [108 !] it is referred to *Appasus.*
" 152, genus 7, read "**Hydrocyrius**....89 [49 !]." On page 147 [107 !] *columbiae* is described as the only species and therefore type.
" 152, family 11, genus 8, last line but one, for "*Corisa*" read "*Corise,*" and on last line before "*Corisa*" insert "=."
" 156, under **Mesovelia,** for "Yakovley" read "Yakovlev."

N. B.—Throughout, a note of exclamation "!" has often been employed instead of "?."

SOME COSTA RICAN BEES.

BY J. C. CRAWFORD, JR.

The material on which this paper is based was for the most part collected by the author in odd moments while doing other work in 1903. In all only about 400 specimens were taken. Some specimens collected by Prof. L. Bruner and Messrs. Cary and Carriker in 1902, as well as a few received from other people while in Costa Rica, were examined, all these being properly credited. Those having no collector's name after them were taken by the author. In addition to the species mentioned in the paper, quite a number of others were taken, which at present cannot be identified, among them being about a dozen species of *Melipona*.

The localities from which specimens were examined are as follows: on the Atlantic Slope, Guacimo (450 feet); Guapiles (1000 feet); Cartago (4450 feet); Volcano Irazu (9000 feet). On the Pacific Slope, San Jose (3550 feet); Monte Redondo (about 4000 feet); Pozo Azul, on the Rio Grande near the Pacific Ocean.

The types, except that of *Dialictus costaricensis*, have been deposited in the National Museum; cotypes have been given the American Entomological Society.

BOMBIDÆ.

Bombus ephippiatus var. **lateralis** Sm. ♀.—Pubescence on head dark brown, mixed with lighter on vertex; on mesothorax above rich brown, appearing reddish or fox color in certain lights; elsewhere on mesothorax yellow; legs with brown pubescence; wings not deeply infuscated; pubescence of first abdominal segment and basal middle of second yellow; of rest of abdomen bright red.

☿.—Pubescence of second and third abdominal segments sometimes reddish.

Volcano Irazu, from one nest many ♀ ♀ and ☿ ☿ (L. Bruner); Cartago (June).

San Jose, June, on *Dahlia*. The most common species taken. From Cartago (June) I received about one hundred workers.

This is the species described as *leucomelas* Crawford and Swenk. Dalle Torre has wrongly credited this species to Asia, as the type came from Chiriqui, so the species was overlooked and redescribed.

EUGLOSSIDÆ.

Euglossa cordata Linn.

Guapiles, March, June. Taken making nests between the boards of the roofing. From Pozo Azul (June 15th, Carriker), from a nest on the under side of a leaf one ♀ that is entirely reddish coppery, with green reflections in certain lights; legs more green. Except for the color this specimen agrees perfectly with typical *cordata*, and is only a color variety.

Euglossa bicolor Ducke.

One ♀ from Pozo Azul (May 20, 1902, Carriker), having the vertex and thorax above, first and second abdominal segments deep violaceous, rest of insect all green.

Eulema mexicana var. **connexa** Friese.

One ♀ at Guapiles (March).

Eulema fasciata Lep.

Pozo Azul, June (Carriker); Guapiles, March; San Jose, all ♀ ♀.

Centris nitida Sm.

San Jose, in May and June, 4 ♀.

Centris difformis Sm.

Pozo Azul, June 15th (Carriker), one ♀.

Centris Friesei n. sp. ♀.—Head and thorax black, abdomen and venter red; mandibles, except tips, labrum, except anterior border and a basal medial spot, a transverse spot on each side of clypeus which is inclined slightly upward toward the middle, anterior and intermediate knees and narrow anterior orbits as high as insertion of antennæ, yellow; labrum coarsely punctured, twice as wide as long, fringed with yellow hair; clypeus wider than long, very sparsely and finely punctured, concave on the apical half, the anterior border raised into a carina, which laterally terminates in a slight elevation; basally two large but not very apparent elevations on the clypeus; inner side of mandibles with a large tooth near apex and a small sharp projection medially; pubescence of head, thorax and pleura olive-grey, composed of dirty whitish hairs, each tipped with black; pubescence of cheeks white; flagellum ferruginous beneath; mesothorax closely punctured, scutellum sparsely so; wings very dark, splendidly iridescent; legs black, posterior pair reddish behind; pubescence of anterior pair light; of intermediate tibiæ reddish golden, the tarsi with blackish brown, fringed with reddish; of posterior pair reddish golden, rufous internally and on tarsi and darker at apex of tarsi; abdomen finely and sparsely punctured, with olive-grey pubescence on first segment, and on apical segments reddish golden. Length 20 mm.; width 7 mm.

Three specimens, Guacimo, June 19th to 21st.

Differs from the description of *personata* Sm. in the concave clypeus and different face markings; *breviceps* Friese has similar pubescence and concave 4-gibbous clypeus, but has different face markings and 4 toothed mandibles.

The specimens were secured on the veranda of a house where they were making nests between the boards of the roofing. Other bees similarly taken were *C. labrosa*, *simplex*, and at Guapiles *Euglossa cordata* and *Eulema mexicana connexa*.

Centris proxima Friese.

Common at Guapiles, in March. All the specimens taken are somewhat smaller than the size given by Friese, the ♂ being only about 15 mm. long; the tooth on the hind tibiæ of the ♂ has one side straight and the other curved; in the ♀ the pubescence of the legs is somewhat lighter than as given by the description; otherwise as described. Three ♂, 12 ♀.

Centris labrosa Friese.

One ♀ from Pozo Azul, in June (Carriker).

Centris labrosa var. **simplex** Friese.

The specimens taken are even smaller than the length given, being only 11 mm. in the ♀, and have the wings clear. Four ♀, Guacimo, June.

Centris lanipes Fabr.

A single female from San Jose, in June.

Centris pœcila var. **segregatus** n. var. ♀.—Labrum, mandibles, malar space, triangular lateral face marks, small supraclypeal mark, scape in front, anterior and intermediate knees and narrow lines on anterior tibiæ externally, all yellowish; pubescence on vertex black, on basal half of fourth and segments 5–6 fulvous; otherwise as described for *pœcila*. Length 15 mm.

Four ♀, San Jose, May 15th and 25th, June 1st.

ANTHOPHORIDÆ.

Macroglossapis rubricata Sm.

The specimens appear to differ slightly from the typical form. Pubescence of mesothorax above black, with fulvous at the tegulæ, and a line of the same at the rear of the mesonotum; black on disc of postscutellum, fulvous on metathorax and pleura, white on cheeks; red of abdomen confined to discs of first two segments; apical margins of segments 1–4 broadly whitish hyaline. One specimen is entirely without the red on the abdomen. Four ♀, San Jose, June 25–30, on *Dahlia.*

Macroglossapis Cockerelli n. sp. ♀.—Black, discs of segments 1 and 2 largely ferruginous, narrow apical margin of first and apical half of segments 2-4 whitish hyaline; head and thorax finely sericeously lineolate; clypeus with large, shallow irregular punctures and a medial, longitudinal, shiny, impunctate carina, not lineolate; labrum whitish testaceous; mandibles medially, narrow apical margin of clypeus and flagellum beyond first joint even above, ferruginous; mesothorax finely rather closely punctured; pubescence of head and pleura griseous, of thorax above and a spot in front of tegulæ and on base of abdomen light fulvo-ochraceous; wings yellow, nervures and stigma honey color; legs dark, apical joints of tarsi ferruginous; pubescence of legs whitish, ferruginous on inner side of tarsi; abdomen finely sericeously lineolate, finely rather sparsely punctured; covered with thin short whitish hairs, on the sides of the abdomen and on discs of apical segments a few black hairs; pubescence of 5–6 brown- Length about 11 mm.

San Jose, 5 ♀, May 25th to June 9th.

The abdomen is somewhat similar to that of *rubricata,* but the apical margins of the segments are whiter and more contrasting. It differs widely from that species in the light pubescence of the thorax.

Apparently like *modesta* in the pubescence of the thorax, but that species does not have any red on the abdomen nor the apical margins of the abdominal segments light.

Macroglossapis nigravillosa n. sp. ♂.—Black, head and thorax sericeously lineolate, finely and sparsely punctured, clypeus medially elevated but lineolate like the rest; labrum white; clypeus anteriorly narrowly ferruginous; antennæ nearly as long as the body, obscurely ferruginous beneath; pubescence black, except a little at sides of face, a small spot between antennæ, cheeks entirely, narrow line over tegulæ extending around rear of mesonotum, more or less on metathorax, base and apex of abdomen and under side of thorax and abdomen where it is white; wings dusky, nervures dark; legs dark, obscurely ferruginous behind, small joints of tarsi reddish; abdomen sericeously lineolate, finely and sparsely punctured, apical margins of segments reddish; apex of abdomen emarginate; apical half of ventral segments testaceous, with ferruginous on bases of segments 1 and 2. Length 10–11 mm.

Six specimens from San Jose, June 23rd and 25th, on *Impatiens;* June 28th on *Dahlia.*

Differs from the descriptions of the other males in the almost entirely black pubescence of the thorax; *montezuma* has the pubescence of the thorax anteriorly black, posteriorly rufous; *albilabris* ♀ has the pubescence above black but no light, apical margins of abdominal segments not lighter, and is apparently a much larger species, the ♀ being 16 mm.

Exomalopsis similis Cress.

A large series from Guacimo in June, and from Guapiles in March, both sexes being taken.

Mr. Viereck compared this species with the type and says it is identically the same.

Entechnia fulvifrons Sm.

Juan Vinas, March 11th (L. Bruner); Monte Redondo, March 3rd (L. Bruner), 3 ♀.

XYLOCOPIDÆ.

Xylocopa cornuta Fabr.

Two ♀, one taken at San Jose in June, and the other received from a curio dealer, who did not know the place it was taken.

Xylocopa barbata Fabr.

One ♀, San Jose, May 30th. The steel blue color, with the white pubescence behind the eyes and on the lateral margins of the fourth and fifth abdominal segments, make this a striking species.

Xylocopa tabaniformis Sm.

On ♀ on May 26th, at San Jose.

PANURGIDÆ.

Hylæosoma Ashmeadi n. sp. ♀—Black, form narrow, clothed with thin ochraceous pubescence, abundant on ventral segments; head and thorax finely tesselate, slightly shining, very finely, but not closely punctured; antennæ, tarsi and knees testaceo-ferruginous; face long, eyes converging below; base of metathorax with a longitudinal line medially, and on each side of this a few weak wrinkles not reaching apex, no distinct enclosure; wings hyaline, nervures and stigma dark brown; abdomen impunctate, shining, segments transversely striatulate. Length 3½ mm.

San Jose, June 14th.

This species is close to the type of the genus, but differs in the head and thoxax much less shining, punctures of mesothorax smaller, second submarginal comparatively large, first recurrent nervure nearer base of second submarginal cell, base of metathorax without triangular enclosure, etc.

This genus is peculiar in the female, having the antennæ strongly clavate, as well as in the very prominent thorax and the peculiar venation.

ANDRENIDÆ.

Agapostemon nasutus Sm. ♀.—Head and thorax bluish green, punctuation as in the ♂; face broad; clypeus green, not bent anteriorly as in the ♂, but with a slight medial depression, apically a transverse yellow band bordered on each side by black, the yellow produced to a point medially at rear; flagellum reddish beneath; tubercles with a yellow spot; legs dark, tarsi ferruginous; front knees and a line down the front of anterior tibiæ yellow; scopa yellowish, black externally; abdomen finely and closely punctured, segment 1 reddish at base; a band of appressed white pubescence on bases 2–5; base of first segment with erect light pubescence; other pubescence on abdomen dark; venter obscurely ferruginous. Length 10 mm.

Six ♀, San Jose, June 25th, on *Dahlia;* Guapiles, March 7th. Many males, San Jose, March 7, 1902 (M. Cary), June 25th; Guapiles, March 6th and. 7th.

Agapostemon vulpicolor n. sp. ♀.—Head and dorsum of thorax deep greenish bronze, clothed with dense bright fulvous pubescence nearly obscuring the surface of the mesonotum; pleura green; head closely and coarsely punctured, confluently so below the antennæ; antennæ dark above, flagellum reddish beneath; mandibles black, tips reddish, a yellow spot at base; clypeus green, anteriorly black (in one specimen a yellow line on the black); mesothorax closely and rather finely punctured, with scattered larger punctures; tegulæ rufous; wings slightly dusky, more so apically; nervures dark, stigma medially honey color; base of metathorax coarsely and irregularly rugose, with a triangular enclosure, the enclosing lines not reaching anterior part of metathorax; legs dark, apical joints of tarsi ferruginous; pubescence of legs reddish yellow, externally brownish black; abdomen black, shining, finely and rather sparsely punctured; segments 2–5 with basal bands of appressed white pubescence, base of first segment with erect light pubescence and a patch of appressed white hair medially on the lateral margins of the segment; pubescence of apical segments black. Length 10 mm.

Six specimens, Volcana Irazu, February (Carriker); San Jose, June 25–26th, on *Dahlia.*

This species differs from all others of the genus known to me by the intensity of the bronze color of the head and mesonotum and the great amount of long fulvous pubescence on the thorax.

Halictus sudus Vach.—Punctures of head above antennæ about as on mesothorax; face below antennæ usually greenish, clypeus mostly black; hind spur with about four long teeth; abdomen almost olive-green, apical margins of segments narrowly blackish; length 6–6½ mm.

Except for the color of the abdomen this agrees perfectly with the description given by Vachal and it seems certainly the same. It is a very striking species owing to the blue of the head and thorax contrasting with the abdomen and the confused punctuation of the mesothorax, which is very much like that of *reticulatus* Robt., as is the color of the head and thorax.

Eight ♀, San Jose, May 30–31.

Halictus indistinctus n. sp. ♀.—Head and thorax very obscurely dark olivaceous, appearing almost black, finely roughened and dull; metathorax purplish black; head very finely and closely punctured above antennæ, clypeus and supraclypeal area sparsely so, purplish; mandibles dark, tips red; clypeus produced; facial quadrangle slightly longer than broad; antennæ dark, flagellum dull reddish beneath toward apex; head and thorax with rather abundant long white pubescence, more abundant on cheeks and pleura; mesothorax finely, moderately closely punctured, sparser on disk; median and parapsidal grooves distinct; base of metathorax with fine longitudinal striæ reaching about halfway to apex, beyond this smooth and shining; pleura finely roughened; wings dusky, nervures, stigma and tegulæ piceous; legs dark, inner hind spur with 2-3 long teeth; abdomen black, shining, very finely and sparsely punctured, apical margins of segments very narrowly subtestaceous, showing plainly only on first segment; abdomen clothed with short whitish hairs, more abundant toward apex; lateral basal margins of segments 2–3 with white hair patches. Length 5–5½ mm.

Three ♂, San Jose, June 14th and 21st (Lizano coll.).

Dialictus costaricensis n. s. ♀.—Head and thorax green; face closely and coarsely punctured, clypeus and supraclypeal area finely roughened and sparsely punctured, clypeus anteriorly black; antennæ black, slightly reddish beneath apically; scape reaching anterior ocellus; mesothorax finely roughened and with distinct, rather close and coarse punctures; base of metathorax with many fine irregular lines not reaching apex; tegulæ large and shining, black, punctured anteriorly; wings hyaline, iridescent, nervures testaceous, stigma honey color; second submarginal cell receiving first recurrent nervure about one-third from base, and second recurrent nervure about one-fifth from apex: legs black, apical joints of tarsi more or less ferruginous; inner hind spur with about four long teeth; scopa white; abdomen black, shining, sparsely and finely punctured; segment 1 impunctate; apical margins of segments narrrowly testaceous; pubescence of abdomen sparse, more abundant at sides and apically, whitish; venter with long white hair. Length about 4½ mm.

One specimen from San Jose, taken June 25th.

This species differs from those found in the United States by the much closer punctuation of the mesothorax, larger tegulæ, weaker wrinkles of the metathorax, etc.

A Review of the Species of TANARTHROPSIS Casey.

BY H. F. WICKHAM, IOWA CITY, IOWA.

The genus *Tanarthrus* was established in 1851, by Dr. J. L. LeConte, upon *T. salinus*, an Anthicid from the salt basins of the Colorado desert. Its peculiar habits were alluded to at the time of description, the flight being likened to that of *Bembidium*, though in his later "Synopsis of the Anthicites," Dr. LeConte says "it runs very actively and frequently takes flight like *Cicindela* or *Bembidium*." Next year, another insect, *Anthicus alutaceus* Lec., was removed to the genus, and in 1875 *T. salicola* was described by the same author. Thus the matter stood until 1895, when Major Casey revised the Anthicidæ. He proposed the subdivision of the genus, using the name *Tanarthrus* (in subgeneric sense) for *salinus* alone, creating the subgenus *Tanarthropsis* for the smaller forms, *alutaceus*, *salicola* and four others which he proceeds to describe. Recently, by letter, he has suggested that *Tanarthropsis* be raised to generic rank, on the basis of the antennal structures elaborated in his Revision referred to above—and in deference to his opinion I have here adopted that view.

All of the species of *Tanarthropsis* are small, seldom exceeding a length of 3 mm. In build they are very similar, all rather narrow, more or less depressed, the elytra generally subtruncate, exposing the pygidium wholly or in part. The coloration is simple, the body being usually rufous or testaceous, the abdomen and postpectoral regions frequently blackish, the elytra pale, more or less yellowish, with a post-median dark band, which may be expanded along the sides. In a few instances the dark color of the elytra predominates, while *T. alutaceus* is wholly blackish. The peculiar elytral sculpture has been well described by Major Casey. On these parts of the body, the surface is finely reticulate and minutely densely punctate, and frequently, in addition, we find a set of larger craterform or areolate punctures, scattered among the smaller ones, better developed in some species than in others, and giving the insect a striking appearance under sufficient magnification. Upon this sculpture, Major Casey divided the species of *Tanarthropsis* into two series, using the presence or absence of these craterform punctures as a point of departure in the construction of his table. But, unlikely as it may seem at first sight, I believe, from the study of a very large series, that the character is principally sexual, the crater-form punctuation pertaining especially (though not exclusively) to the males. Further reference will be made to this feature in the specific descriptions.

Some of the species of *Tanarthropsis* are quite closely allied among themselves. They are occasionally common in the Great Basin, some extending into Arizona and to the sea coast of California, but not, so far as known, reaching Mexico. Their habits are quite similar, most of the species frequenting the flats in the immediate vicinity of salt or alkaline lakes, hiding under rubbish or caked mud, running and flying, when disturbed, after the manner of *Bembidium.* Nearly all have come under my personal observation in the field. Their distribution is correlated in a striking manner with that of the Cicindelæ of the *latesignata, fulgida* and *echo* types—a matter to which I shall revert later on.

I wish to express my thanks to those who have assisted in the preparation of this little memoir. I have derived much help from the advice of Major Casey, who verified my determinations of some of his species and gave me information concerning the LeConte types which he has examined. Through the kindness of Mr. Schwarz and Dr. Howard I have been enabled to study the National Museum series, and Dr. Holland has favored me with some specimens from the Ulke collection (now in the Carnegie Museum) for comparison. Mr. Fall has loaned me a series from his cabinet and has verified certain characters to which I had called his attention. My own collections have provided me with a series running into the hundreds, and I think the material at my disposal far exceeds that in the hands of previous investigators.

My proposed tabular arrangement of the species of the genus *Tanarthropsis* is based largely upon color characters, because these are easily seen and fairly constant. The disposition of the pubescence upon the elytra has proved a useful feature as a point of departure, and is readily observable with the help of a strong hand lens. I have not felt at liberty to make much use of the extent to which the pygidium is exposed, finding that the abdomen is apparently susceptible to a varying degree of contraction in drying. With a fair series at hand, some study and a good microscope, it is probable that the separation of the species will be a matter of only moderate difficulty Reference should, however, be had to the descriptions as well as to the table, which follows:

A. Elytral pubescence, in a short post-scutellar space, directed sharply away from the suture. Apical truncature strong. **brevipennis** Csy.

AA. Elytral pubescence directed backwards over the entire disk.

b. Elytra more or less flavate or rufescent.

c. Elytra connate along the suture, not dehiscent at apex...**nubifer** Csy.

cc. Elytra not connate, dehiscent apically.

d. Elytra (in the male) covering the entire abdomen, not in the least truncate. Sides of prothorax strongly shining beneath. **virginalis** n. sp.

dd. Elytra more or less truncate, exposing at least the tip of abdomen.

e. Head and prothorax black or nearly so...........**mormon** n. sp.

ee. Head and prothorax rufous or testaceous.

f. Elytra normally blackish, pale only at base; a small subapical spot sometimes present on each.....................**inyo** n. sp.

ff. Elytra in greater part pale, often with blackish postmedian band.

g. Elytra distinctly though not very strongly shining; the blackish fascia simply transverse..................**salicola** Lec.

gg. Elytra densely opaque, apparently thicker; blackish fascia extending along the sides to apex...............**densus** Csy.

ggg. Elytra without postmedian blackish fascia..**infernalis** n. sp.

bb. Elytra and entire body black......................... **alutaceus** Lec.

T. brevipennis Casey.—Narrow, subparallel, depressed, not shining, pale rufotestaceous, under side of abdomen piceous, exposed dorsum blackish, elytra blackish, with the apex and about basal third pale. Pubescence distinct, pale, flaring away from the suture in the postscutellar region. Head quadrate, basal impression obsolete, tempora subparallel, long, arcuate, slightly more prominent than the small eyes; disk reticulate, punctures large and shallow. Prothorax narrower than the head, reticulate and with shallow punctures; widest near the apex, where it is strongly rounded, sides thence oblique and feebly arcuate, slightly sinuate to the basal margin. Elytra short, wider behind the middle and at apex than at base, sides feebly arcuate, disk flattened, minutely densely punctured in the female. Legs rather short and somewhat stout, the tarsi short and very slender. Length 3 mm.

In general, the above brief description follows that of Major Casey, which may be consulted for further detail. He described the species from a female, given him by Mr. Roberts and originally collected by myself at Holbrook, Arizona. In my collection is a precisely similar female from the same place, and I have placed another in the collection of the National Museum. A male from Winslow, Arizona, in my collection, is associated with this species, but differs in having the craterform punctures of the elytra strongly developed and rather crowded. In this sex, the fifth ventral is as long as the fourth, broadly depressed posteriorly at middle, the apex finely beaded with shallow but broad emargination.

Readily distinguishable in both sexes, from all our other species of *Tanarthropsis* by the peculiar disposition of the pubescence in the postscutellar region. In the Ulke collection, now in the Carnegie Museum, this species is labelled *salinus* Lec., with which it agrees in no essential particulars.

There is no salt or alkaline lake in the neighborhood of Holbrook and Winslow, where I collected the species in moderate numbers. While I have no field notes bearing directly on the matter, my belief is that the beetles were found hiding under drying cow-dung along the river bars.

T. nubifer Casey.—Narrow, parallel, depressed, dull, elytra paler, less dull; pale rufotestaceous, abdomen above and beneath blackish. Elytra with a common scutellar spot and another on each behind the middle, blackish. Pubescence short, decumbent, rather close, even, longitudinal in direction on the elytra. Elytra short, one-half longer than wide, connate throughout, the sides parallel, not wider behind the middle than at base, punctures fine and dense, craterform punctures wanting. Length 3 mm.

I have not seen this species, which should easily be recognized by the shorter, connate, parallel elytra. It is described from Great Salt Lake, the female only being known. A specimen of *Tanarthropsis* in my collection from Honey Lake, California, has short, apparently connate non-dehiscent elytra, but they are distinctly broader behind the middle and the craterform punctuation is distinct. I prefer not to give it a name at present.

T. virginalis n. sp.—Narrow, less depressed than usual, faintly shining, rufotestaceous, the elytra paler, very slightly infuscate at base and with faint indication of marginal postmedian cloud, abdominal segments blackish beneath. Pubescence rather short, pale, subdecumbent, not close on the elytra. Head subquadrate, base truncate, tempora moderately long, nearly parallel but slightly arcuate and a little less prominent than the eyes, median basal impression obsolete, almost wanting; sculpture consisting of a distinct intricate reticulation surrounding well-defined subareolate shallow punctures, which are regularly disposed and separated usually by considerably less than their own diameters. Constriction of the eleventh antennal joint much less marked than usual. Prothorax of the usual shape, slightly narrower than the head, sculpture similar to that of the head but distinctly deeper, the punctures distinctly areolate, basal margin and collar well defined and strong. Elytra broader than the prothorax, pubescence directed longitudinally, craterform punctures distinct, separated on the disk by spaces usually equal to or greater than their diameters; apices not in the least truncate. Abdomen finely distinctly reticulate, sparsely punctate and pubescent. Length 2.6 mm.

The elytra are somewhat spread in the unique male type, but evidently quite cover the abdomen; the wings are seen to be large and well developed. The fifth abdominal segment is broadly but distinctly emarginate, the posterior margin finely beaded. The flanks of the prothorax beneath are apparently brilliantly polished under low power, though under high magnification they are seen to be finely reticulate, with a few distant, regularly disposed, pubiferous simple punctures. The type remains in my cabinet. I took it on the flats adjoining the Virgin River, a few miles from St. George, Utah, in July. A close search failed to disclose any other specimens of the genus in the neighborhood.

T. mormon n. sp.—Smaller and less depressed than usual, parallel, opaque, blackish piceous, pubescent, antennæ and legs reddish brown, elytra with large basal and subapical pale spot on each. Head subquadrate, truncate and broadly emarginate at base, tempora very slightly divergent posteriorly, faintly arcuate, about as prominent as the eyes; upper surface distinctly strongly but finely reticulate, variolate punctures shallow but numerous, mostly separated by a distance much less than their own diameters, basal median impression distinct but not deep. Prothorax of the usual form, slightly narrower than the head and similarly but more deeply punctured, collar and basal marginal bead strong. Elytra conjointly broader than the prothorax, not covering the abdomen, subparallel, not connate, apices distinctly subtruncate and dehiscent. Punctuation double, as usual, craterform punctures not very well differentiated in either sex, though more so in the male, where they are close, almost approximate. Pubescence short, sparse, longitudinally directed. Abdomen alutaceous, sparsely punctured and pubescent. Legs moderate. Length 2.55 mm.

The type is a female, collected by myself on the flats near Utah Lake, in the vicinity of Provo, during June. With it are associated two males from the same source. In the latter sex, the fifth ventral is feebly broadly emarginate behind, as usual. Some variation is exhibited in the series, the depth of color not being uniform. In one specimen, the elytra are entirely dark, except a small subhumeral and apical pale spot on each. The type remains in my collection, a cotype has been placed in the U. S. Nat. Mus.

T. inyo n. sp.—Subparallel, rather depressed, slightly shining, head and prothorax rufo-testaceous, legs and antennæ paler, the elytra, excepting an indefinite reddish basal space and occasionally a subapical spot, blackish. Abdomen and metasternum also blackish. Pubescence whitish, sparse, less so on the elytra, where it is seen to be of two lengths intermixed. Head subquadrate, finely reticulate, and with scattered moderately deep variolate punctures, tempora subparallel, a little less prominent than the eyes, angles broadly rounded, base truncate and sinuate, median impressed line short but distinct. Antennæ rather long, feebly incrassate, second and third joints subequal, a little longer than those immediately succeeding, fourth to seventh maintaining nearly uniform size and shape, eighth to tenth proportionately broader and more constricted at base, eleventh acorn shaped, nearly equal in length to the two preceding, constricted as usual, the basal portion shorter. Prothorax barely wider than long, widest and strongly rounded at apical third, sides behind rapidly arcuately narrowing to about basal third, parallel only very near the base. Basal marginal line distinct; disk more coarsely and deeply punctured than the head. Elytra near the base a little more than one-third wider than the prothorax, sides subparallel, slightly broader behind the middle, thence again narrowing, tips dehiscent, subtruncate, angles rounded, the outer much more broadly, disk reticulate, craterform punctures well developed in the males, irregularly and not very closely disposed at middle but closer near the base and apex, pubescence directed longitudinally. Abdomen beneath, finely and distinctly reticulate, but shining, sparsely punctured and pubescent. Length 2.8–3.5 mm.

The fifth ventral of the male is truncate behind, broadly, not deeply sinuate at middle, the posterior margin finely beaded. The characters given above indicate a species allied to *salicola*, but at once distinguished by its color and by the much stronger craterform punctures.

Numerous specimens were taken by me on the flats adjoining Owen's Lake, California. They were commonest quite close to the water where the drift and wind had formed cakes of scum, composed chiefly of exuviæ shed by the larvæ of flies. *T. inyo* might be seen running about, taking flight fairly readily if alarmed, but generally more abundant under the cakes than upon them.

T. salicola Lec.—Narrow, subdepressed, somewhat shining, rufotestaceous, more or less flavate, pygidium and usually the under side of the abdomen blackish. Elytra paler than the prothorax, crossed behind the middle by a piceous band. Pubescence rather sparse, that of the elytra directly longitudinally. Head subquadrate, basal impression distinct. Elytra leaving more or less of the pygidium exposed, minutely simply punctate in the female or with craterform punctures intermixed in the male; sides subparallel, apices subtruncate. Length 3 mm, a little more or less.

With the above I have united *tricolor* Casey, believing the name to have been applied to pale female specimens. I have not seen the LeConte types, which, however, were examined by Major Casey. The specimens of *salicola* from the Ulke collection, kindly loaned by Dr. Holland, are of the pale form.

As I interpret the species, it occurs at various points in the Great

Basin. The original description cites Great Salt Lake, but Mr. J. D. Putnam, who claims to have collected the specimens and to have sent them to Mr. Ulke, says (Proc. Davenport Acad. Sci., i, p. 201), that he took them on the shores of Utah Lake. I have since found it at the last named point, in June; Clear Lake Station, Utah, common the first of July; Milford, Utah, one or two in July; Little Salt Lake, near Parowan, Utah, many under rubbish on the mud flats near the lake, in August; Humboldt Lake and Lovelock, Nevada, a few in June; and in great abundance under rubbish and caked mud along the beaches of Great Salt Lake, where it was also taken in numbers by Mr. Schwarz during June and July.

T. densus Casey.—Narrow, subdepressed, opaque, above rufotestaceous, darker than *salicola*, underside of meso- and metathorax and abdomen black. Pygidium black. Elytra with postmedian black band expanded on the sides and extending around the apex. Pubescence rather sparse. Head subquadrate, basal impression distinct. Elytra subparallel, tips subtruncate, exposing more or less of the pygidium, disk minutely finely densely punctate, with intermixed craterform punctures in both sexes, pubescence longitudinally directed. Length 3 mm., a little more or less.

My first inclination was in the direction of suppressing this name, the series of *salicola* showing some evident tendencies towards intergradation. On further consideration I have considered it unwise to do so, the typical specimens are so very different in appearance from *salicola* and readily separable at sight.

I have specimens, all of my collecting, from Saltair, Milford, Utah Lake, Sevier Lake, Clear Lake and Little Salt Lake, in Utah; and from Humboldt Lake, Nevada. It seems much less abundant than *salicola*, though associated with it.

T. infernalis n. sp.—Narrow, subdepressed, parallel, distinctly and (for this genus) strongly shining, yellowish testaceous, the head and prothorax slightly rufescent. Head subquadrate, truncate at base, median basal impression short, tempora subparallel, slightly arcuate and about as prominent as the eyes; surface reticulate and with shallow variolate punctures, separated on the vertex by spaces approximately equal to or slightly less than their own diameters. Antennæ with the eleventh joint equal to the ninth and tenth together, constriction deep, basal portion shorter. Prothorax narrower than the head, of much the usual form, but the sides in front of the middle are less bulging than in *salicola*, punctuation similar to that of the head but a little stronger and closer; collar and basal marginal line strong. Elytra dehiscent, broader than the prothorax, sides subparallel, apices subtruncately rounded, leaving the pygidium exposed; pubescence short, sparse, longitudinally disposed. Craterform punctures shallower than usual, crowded near the base, separated by approximately their own diameters (though irregularly disposed) on the middle of the disk. Abdomen alutaceous, scarcely shining, sparsely punctured and pubescent. Legs moderate. Length 2.6 mm.

The measurement cited above, is that of the type, which belongs to the United States National Museum. Another specimen, which I have been allowed to retain, is slightly smaller, while a third, probable a female, is a trifle larger. This last mentioned specimen is somewhat differently colored, the elytra being slightly infuscate at tip, and the entire upper surface of the body less shining. The abdomen in this last specimen is piceous, and it may perhaps not belong to the same species, since it differs also in not having evident craterform elytral punctures.

Collected in the Panamint Valley, California, by Mr. Koebele, during his connection with the Death Valley Expedition, and listed as *Tanarthrus* n. sp. by Mr. Linell in his report on the beetles of that region. The label bears date of April, 1891. The application of the specific name will be evident enough to one who has had experience in the district whence the species came.

T. alutaceus Lec.—Narrow, slightly convex, feebly shining, black, antennæ and legs more or less piceous. Pubescence fine, short and sparse. Elytra one-half longer than wide, with sparsely placed shallow craterform punctures among the fine interstitial ones. Length 2.2 mm.

Easily recognized by the small size, dark color and feeble sculpture. It is found in California, my specimens coming from Redondo (March and June) and San Diego County (March). They were given me by Mr. Fall.

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NOTES AND DESCRIPTIONS OF HYMENOPTERA FROM THE WESTERN UNITED STATES.

In the collection of the University of Kansas.

BY H. L. VIERECK, ACAD. NAT. SCI., PHILA., PA.

The species are arranged systematically under the State or Territory in which they were found.

TENTHREDINOIDEA and SIRICOIDEA.

For the arrangement of genera, the determination of certain species and for other useful assistance in these superfamilies, the writer is indebted to Dr. A. D. MacGillivray.

Unless otherwise mentioned the specimens were collected by Prof. F. H. Snow.

KANSAS.

TENTHREDINOIDEA.

Macroxyela ferruginea Say.

Hamilton Co. (S. J. Hunter).

Emphytus apertus Nort.

Douglas Co., Aug. (E. S. Tucker).

Emphytus inornatus Say.

Douglas Co., 900 ft., June (U. of K. coll., lot 57).

Harpiphorus tarsatus Say.

Rock Cr., Douglas Co., 900 ft.

Tenthredopsis atroviolacea Nort.

Douglas Co., 900 ft.

Macrophya intermedia Nort.

Douglas Co., 900 ft., May. I doubt whether *succincta* of Cresson is specifically distinct from this species.

Macrophya pulchella Klug.

Douglas Co., 900 ft., May (U. of K. coll., lot 29).

One specimen has the coxæ partly yellow.

Another specimen has the lanceolate cell partially petiolate.

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[1] Continued from Biological Papers, Kansas Academy of Sciences, 1905.

Macrophya tibiator Nort.

Same date and lot as the preceding number. Has white spot on coxæ as in Texan specimens of this species.

Zarea americana Cress.

Douglas Co., April.

Trichiosoma triangulum Kby.

Oregon Cascades.

Blennocampa pygmæa Say.

Douglas Co., June (U. of K. coll., lot 57).

Hylotoma humeralis Beauv.

Douglas Co., 900 ft.

Schizocerus plumiger Klug.

Clark Co., 1962 ft., May.

Schizocerus zabriskii Ashm.

Douglas Co. One (F. H. Snow); another taken in August by E. S. Tucker.

Schizocerus invita Crees ?

This specimen from Clark Co., 1962 ft., taken in June, may prove to be a new species. Dr. MacGillivray doubtfully refers it to *invita* Cress.

Acardulecera dorsalis Say.

Douglas Co., 900 ft., June and July (E. S. Tucker, U. of K., lots 46, 57, 655. Dr. MacGillivray remarks that several species are included under this name, species that can only be separated when the genus is fully studied and revised.

SIRICOIDEA.

Tremex columba Linn.

Douglas Co., 900 ft., October (E. S. Tucker).

PENNSYLVANIA.

TENTHREDINOIDEA.

Pamphilius ocreata Say.

Jeannette (H. G. Klages).

Strongylogaster apicalis Say.

Jeannette (H. G. Klages).

Selandria obsoleta Nort.
Indiana.

Selandria diluta Cress
Jeannette (H. G. Klages).

Dolerus similis Nort.
Jeannette (H. G. Klages).

Macrophya albomaculata Nort.
Jeannetts (H. G. Klages).

Hylotoma humeralis Beauv
Jeannette (H. G. Klages).

Acordulecera dorsalis Say
Indiana.

ARIZONA.

TENTHREDINOIDEA.

Selandria media Nort.
Oak Creek Canyon, Aug., 1902.

Pristiphora siskiyouensis Marl. ♂.
Oak Creek Canyon, Aug., 1902.

COLORADO.

TENTHREDINOIDEA.

Tenthredo montanus Prov.
Estes Park, July, 1892.

Trichiosoma triangulum Kby.
♂ var. with the abdomen ferruginous. Estes Park, Aug., 1892.

Gymnonychus appendiculatus Htg.
Colorado Springs, 5915 ft. (E. S. Tucker).

MISSOURI.

TENTHREDINOIDEA.

Tenthredo tardus Nort.
Kansas City, Sept., 1892 (Harvey).

NEW MEXICO.

TENTHREDINOIDEA.

Tenthredo nupera Cress.
Magdalena.

Tenthredo xanthus Nort.

Magdalena Mts., July, 1894.

Pteronus trilineatus Nort.

Magdalena Mts. One taken in Aug., 1894.

Atomocera ruficollis Nort.

Magdalena Mts., Aug., 1894.

SIRICOIDEA.

Sirex albicornis var. **californica** Nort.

Magdalena, Magdalena Mts., Aug., 1904.

Sirex fulvous Cress.

Magdalena Mts., July, 1894.

WYOMING.

TENTHREDINOIDEA.

Pteronus kœbelei Marl.

Twelve miles northwest of Lusk, July, 1895 (U. of K., lot 478).

Schizocerus plumiger Klug.

Forty miles north of Lusk, July, 1895 (U. of K., lot 48).

Schizocerus abdominalis Cress.

Forty miles north of Lusk, July, 1895 (U. of K., lots 423, 418, 415, respectively).

KANSAS.

ICHNEUMONIDEA.

Melanobracon ulmicola n. sp.

This species has been confused with *simplex*, from which it differs in the margined, very acute, triangular area of the second abdominal segment.

♀.—9 mm.—*Head.*—Shining and polished, and as usual apparently devoid of sculpture; scape about as long as the first and second joints of the flagellum combined, these latter joints subequal, the first joint a little longer than the second, pedicellum about half as long as the first joint of the flagellum, antennæ fifty-five jointed.

Thorax.—Smooth and polished, with the parapsidal grooves deeply impressed on the anterior half of the dorsulum; wings almost completely fuscous, the stigma very dark brown, the nervures dark brown but somewhat paler than the stigma, first submarginal cell with the membrane partly whitish, the third discoidal cell with a whitish spot contiguous with the cubitus and recurrent nervure at their junction, first discoidal cell with a short petiole not longer than the pedicellum, recurrent nervure received by the cubitus a little before the first transverse cubitus—almost interstitial, first abcissa of the radius a little less than half the length of the second abcissa, which latter is about twice the length of the first or second transverse cubitus.

Abdomen.—Chiefly smooth and polished, the second segment with the triangular raised space having a very acute apical angle that almost attains the posterior margin, on each side of this triangular area the abdomen is for a short distance somewhat wrinkled; ovipositor about 2 mm. longer than the head, thorax and abdomen together.

Black; abdomen rather ferruginous, ovipositor brown, sheaths thereof black.

♂.—7 mm.—Differs from the female in having the second segment of the abdomen more wrinkled, with the wrinkles forming striæ, the first segment as in the female, rather striate.

Type.—University of Kansas.

Type locality, Douglas Co., Kansas.

One paratype from the type locality, differing only in the length which is 7 mm.

These specimens were collected on elm trees, where the females were caught in the act of ovipositing through the bark infested with beetles.

Dinotrema signifrons n. sp.

Derives its name from an elongate medial oval convex elevation on the face extending from the antennal fovea to about half way down the face.

♂.—2.5 mm.—*Head.*—Black, smooth and highly polished; clypeus almost similunar, convex and smooth, with an entire rounded edge; mandikles pale brown, the teeth with blackish edges, tridentate, the teeth subequal, the largest tooth, which is rather blunt, being on the upper margin, the middle tooth very sharp, the lower tooth shortest and rather blunt; antennæ twenty-four jointed, the scape and pedicellum pale, testaceous, as is the basal portion of the first joint of the flagellum, the joints subequal and very dark brown, the first joint distinctly but only a little longer than the second.

Thorax.—Black, smooth and polished in the same way as the head; the mesopleura divided transversely by a crenulate groove nearly as long as the tergite; metanotum almost uniformly rugulose, the pleura of the metathorax smooth and polished; wings hyaline, the nervures testaceous, rather tinted with fuscous, the stigma and costal margin darker than the remaining nervures; second submarginal cell pentangular, the second abcissa of the cubitus, which is about half the length of the second transverse cubitus, making a right angle with the third abcissa, posterior wings with the submedian cell a little more than half the length of the median cell; legs uniformly testaceous, the claws brown.

Abdomen.—Chiefly black, the first segment reddish testaceous, rather dullish and with longitudinal elevations, the following segments smooth and shining, the second segment largely testaceous, only the lateral margins brownish, the succeeding segments more or less faintly inclining to testaceous in the middle.

Type.—University of Kansas.

Type locality.—Lawrence, Kansas.

One specimen taken at night, June (E. S. Tucker).

Aphæreta delosa Vier.

Two ♀ taken at twilight in August and June (E. S. Tucker).

Limnerium perdistincta Vier.

Male taken at night, April, Lawrence, Kansas (E. S. Tucker). Differs from the type as follows: antennæ thirty jointed; posterior femora blackish at extreme base and apex, posterior tibiæ with the apical third and nearly all of the basal third blackish, the middle third and a little of the basal third adjoining the middle third largely yellow, the abdominal segments are colored much the same as in the ♀, but the apical segments have more of black than ferruginous, the latter color being tinged with testaceous and confined to triangular areas on the sides of the dorsal segments.

Male taken at twilight, August, Lawrence, Kansas (E. S. Tucker). Differs from the type as follows: antennæ thirty jointed; eyes distinctly metallic green; scape and pedicellum brownish; the areola of the metanotum is shorter, with the lateral carinæ broken below the middle.

Limnerium lawrencei n. sp.

Very like *L. ? nephelodes* Ashm. in color.

♀.—7 mm.—*Head.—Very finely sculptured; the face finely granular and dull, covered with white pubescence, which is not sufficiently abundant to obscure the sculpture; the cheeks not as broad as the eye, a little narrower, and the rest of the head, excepting the mandibles and mouth-parts, black;* antennæ black, thirty-five jointed, *the first joint of the flagellum as long as the scape and pedicellum together, and a little longer than the second joint; mandibles yellow, tipped with brown; palpi whitish.*

Thorax.—Very like the head in sculpture, black; the dorsulum and metathorax dull like the face, *the pleura more shining like the cheeks; metathorax with distinct raised lines and almost completely areolated,* the areola not distinctly separated from the petiolarea, a little more than twice as long as the greatest width, granular and separated from the postscutellum by a nearly quadrate area, the basal area, the sides of the areola are angled at the upper third, external and external median areas confluent, angular area not well defined, almost taken up by the internal area, *spiracular area and middle pleural areas confluent, the spiracular area partially separated by a raised line connecting the spiracle with the pleural carina; wings clear,* *the nervures dark brown, the stigma testaceous, tinted with brown, the extreme bases of the wings are yellow, as are the tegulæ, areolet petiolate,* the petiole as long as the shortest side of the areolet; legs almost entirely ferruginous, including the coxæ, trochanters, except those of the posterior legs, yellow, anterior and middle legs with the apical tarsal joints and the claws more or less yellow; the tibia of posterior legs yellowish brown, broadly brownish at base and apex, the tarsi of the legs uniformly brown, except the metatarsus which is whitish at base.

Abdomen.—Almost equally ferruginous and black; petiole except a partial narrow apical band, basal third of the disc of the second segment and nearly all of the basal half of the sides the same, band occupying basal fourth of the third abdominal segment, a narrow band on disc of the fourth abdominal segment at apex, the fifth segment, except nearly half of the sides, all of the sixth and seventh segments and the sheaths, black; ovipositor a little less than half the length of the abdomen.

Type.—University of Kansas.
Type locality.—Lawrence, Kansas.
One ♀ taken at night in May, by E. S. Tucker.

Limnerium vigilis n. sp.

In color this is very like *L. eurycreonotis*, of which it may prove to be the male.

♂.—8 mm —Similar to the preceding species in the italicized characters.

Head.—Antennæ thirty-seven jointed.

Thorax.—Dorsulum dull like the face, the metathorax rather shining; areola distinctly separated from the petiolarea, nearly twice as long as wide, the lower half forming a square, the upper half nearly triangular, the apex of the triangle being narrowly truncated, *i. e.* the basal transverse carina is about one-third the length of the apical transverse carina, basal area transversely wrinkled, parallel sided and twice as long as wide or nearly, the areola and basal area together shorter than half the length of the metathorax from postscutellum to apex, petiolarea rather strongly and somewhat transversely wrinkled, external area imperfectly separated from the external median area by a faint incomplete line, the two latter areas nearly smooth, delicately wrinkled, the internal area obliquely wrinkled, the wrinkles about as coarse as in the petiolarea, but more separated, angular area almost reduced and lunate, spiracular area and middle pleural area dull granular. the metapleura almost punctate, rather tessellate, partly shining, partly dull; petiole of the areolet a little shorter than the shortest side of the areolet: legs vari-colored, the anterior and middle coxæ black, with the greater part of the apical half ferruginous, posterior coxæ black, with a narrow margin of rufous at apex, anterior and middle trochanters yellow, posterior trochanters with the proximal joint blackish and ferruginous, the distal joint yellow, all the femora ferruginous, the posterior pair darkest, tibiæ much like the femora, only the posterior tibiæ are brownish beneath, with an indistinct band of brown near the base, tarsi brownish, especially those of the posterior legs, those of the middle and anterior legs being yellowish, claws dark brown.

Abdomen.—Black, nearly all of the apical third of the second dorsal segment, apical half of the third dorsal segment and more on the sides thereof, all of the fourth dorsal segment, more or less of the sides and apical third of the succeeding dorsal segments more or less distinctly ferruginous.

Type.—University of Kansas.

Type locality.—Lawrence, Kansas.

One ♀ taken at night in May, by E. S. Tucker.

Idecthis biconjunctus n. sp.

Closely related to *Limnerium conjunctus* Cress., from which it differs in the areola, which is separated from the petiolarea, in the angular area, color, etc.

♂.—6 mm.—*Head* as in *Limnerium lawrencei*, except as follows: antennæ thirty-two jointed; cheeks as wide or very nearly as wide as the eye.

Thorax—With characters italicized in *L. lawrencei*, excepting the petiole of the areolet, which is only about half the length of the shortest side of the areolet; basal area almost an acute angled triangle, nearly twice as long as wide at base, areola pentangular, nearly twice as long as wide, the lower half almost quadrate, finely granular and shining, the sides angled a little below the middle, petiolarea a little more than twice as long as the greatest width, the sides angled in the middle, the surface rather strongly transversely rugulose and shining, external and external median areas finely granular and dullish, separated by a rather distinct raised line angled near the middle, internal and angular areas rugose, the angular area lunate and small, inconspicuous; anterior and middle coxæ black at base, greater part reddish, posterior coxæ black, with a narrow margin of reddish at apex, anterior and middle legs with yellow trochanters, proximal trochanter of posterior legs brownish and black, the distal trochanter yellowish, otherwise the anterior and middle legs are more or less reddish testaceous, the tibiæ rather yellowish, the tarsi brownish, posterior femora ferruginous, the tibiæ of posterior legs dark brown at base, and apex pale brown between, rather yellowish brown beneath, the posterior tarsi brownish.

Abdomen.—Black, dorsally the apical fourth of the second segment a little more the half of the third segment and all of the fourth segment are ferruginous, at least two-thirds of the venter yellow.

Type.—University of Kansas.

Type locality.—Lawrence, Kansas.

One specimen taken at night in May, by E. S. Tucker.

Amorphota augusta n. sp.

Very like *Limnerium montanus* Cress., from which it can be distinguished by the sessile areolet and the larger basal area.

♀.—7 mm.—*Head.*—Nearly as in *L. lawrencei*, the cheeks, however, not more than half the width of the eye and the antennæ thirty-three jointed.

Thorax.—With characters like those italicised in the description of *L. lawrencei*, with the following exceptions: stigma light brown, the areolet quadrangular, nearly quadrate; basal area smooth and shining, nearly quadrate, about as large as the areolet, areola confluent, with the petiolarea only its upper margins normally placed and almost forming the arc of a semicircle, the areola and petiolarea together forming a tolerably deep strongly margined broad furrow that is shining and transversely rugulose, distinctly transversely striate near the apex, external area granular, distinctly separated from the external median area which is almost rugose, the internal area apparently confluent with the angular area and rugose; anterior and middle coxæ almost entirely yellowish to testaceous, posterior coxæ almost entirely black, the trochanters colored as in *Idecthis biconjuntus*, anterior and middle femora yellowish ferruginous, on the anterior legs, the tarsi are brownish testaceous, the claws brown on the middle legs, the tibiæ are largely yellow above, beneath and on the apical third above yellowish ferruginous, tarsi with the first three joints whitish, tipped with brown, beyond the joints are brown, as are the claws, posterior femora ferruginous, tipped with dark brown, posterior tibiæ pale yellowish, with a ferruginous stripe beneath, apical third black nearly all the way around the apical half of the basal third, with a black band nearly all the way round, posterior tarsi with nearly all of the basal half of the first joint and the basal third of the second and third joints cream color, tinted with testaceous, otherwise the joints are dark brown, like the remaining joints and claws.

Abdomen.—Black, the basal half of the venter partly yellow; the ovipositor brown, attaining the tip of the black sheath, the ovipositor about two-thirds the length of the abdomen.

Type.—University of Kansas.
Type locality.—Douglas Co., Kansas, 900 ft.
One specimen taken in August, by E. S. Tucker.

Angitia autumnalis n. sp.

Appears to be like *Limnerium lophyri* Riley, which is too briefly described to make the relation certain.

♀.—9 mm.—*Head.*—Face dull, rather coarsely granular almost as if covered with adjoining punctures; pubescence white, nowhere hiding the tegument; cheeks distinctly narrower than the eye; the eyes distinctly emarginate just above the middle of the inner margin, cheeks shining minutely roughened and tessellate; antennæ thirty-four jointed, the first joint of the flagellum as long or almost as long as the scape and pedicellum together; head and antennæ black, except the scape, which is yellow beneath, palpi yellow, mandibles yellow, except at apex, where they are brown.

Thorax.—Dorsum about as coarsely sculptured as the face but more granular and punctate than rugulose; pleura less granular than the dorsum, shining; metanotum dull rugulose, devoid of carinæ, excepting the bounding pleural carina, with a shallow median longitudinal furrow that has some inconspicuous transverse ridges, metapleura sculptured somewhat like the dorsulum, but more shining; the thorax like the head has white pubescence that is very short on the dorsulum, much longer on the pleura and metathorax; the thorax is black, excepting the tegulæ and bases of the wings, which are yellow, nervures and stigma very dark brown, areolet a trapezium, petiolate, the petioles long or a little shorter than the shortest side of the trapezium; coxæ black, the anterior ones partly yellow around the apex, the middle pair with a little yellow at apex, trochanters nearly almost all yellow, only the posterior proximal pair partly brown, anterior femora, anterior and middle tibiæ yellow, partly stained with a kind of brownish testaceous, especially beneath, the tarsi of anterior and middle legs yellow, with two or three apical joints strongly brown, claws brown, middle and posterior femora ferruginous, the middle pair tipped with yellow, posterior tibiæ and tarsi brown, the tibiæ yellow at extreme base and ferruginous beneath, tibial spurs testaceous, with more or less brownish.

Abdomen.—Chiefly ferruginous, only the first three segments with black, petiole black, except the apical nodular third, which is ferruginous, the second segment black, except a narrow subapical band fused with lateral triangular marks, all of which are ferruginous, third segment with a little more than the middle third of the basal two-thirds black, ovipositor brown, nearly as long as the second abdominal segment, the sheaths black.

Type.—University of Kansas.

Type locality.—Douglas Co., Kansas, 900 ft.

One specimen taken in September, by E. S. Tucker.

Campoplex villosus Nort.

One ♀, Douglas Co., 900 ft., taken by E. S. Tucker.

Ophion idoneum Vier.

♀ ♂ taken at Lawrence, 900 ft. in April, by E. S. Tucker.

Pimpla annulipes Brulle.

Two ♂ from Douglas Co., 900 ft., taken in October, by E. S. Tucker, and in July (U. of K. coll.), lot 61; sub.

Pimpla parvialba n. sp.

Readily distinguished by the black posterior tibiæ with only the basal fourth white.

♂.—6 mm.—*Head.*—Face dull granular, with separated shallow punctures; clypeus shining, more sparsely punctured; cheeks shining and punctured; malar space about as high as the pedicellum is long, antennæ twenty-three jointed, the scape and pedicellum together about as long as the second joint of the flagellum; head black, excepting the flagellum, which is dark brown, clypeus brown, with the anterior margin blackish, mandibles yellow, dark brown at apex, palpi testaceous.

Thorax.—Shining, closely punctured, upper half black, the tegulæ a line beneath posterior wings and a mark on each side of dorsulum cream color or whitish, lower half of thorax chiefly ferruginous; metathorax entirely black, with an even surface and no carinæ; scutellum with two shades of brown and with a whitish margin posteriorly; wings hyaline, with the nervures colorless at base, otherwise dark brown, stigma dark brown, with the basal and apical corners whitish, discocubital nervure almost forming a right angle, areolet oval, almost like a metathoracic spiracle in *Campoplex*, the lumin almost obliterated, the exterior nervure colorless, the petiole nearly as long as the longest side of the areolet; testaceous or ferruginous, the proximal trochanters chiefly concolorous with the coxæ, distal trochanters largely whitish, femora ferruginous, the anterior and middle pairs tipped with whitish, the posterior pair with blackish at tip, anterior and middle tibiæ with from testaceous to ferruginous, with whitish at base and apex, tarsi of anterior and middle legs testaceous, but the apical joint and the claws dark brown, posterior tarsi black, anterior and middle legs with testaceous spurs, the spurs of the posterior legs black or blackish.

Abdomen.—Black, shining and partly closely punctured, first segment punctured throughout, with no sharply defined anterior truncation and with almost parallel longitudinal carinæ extending from the anterior to near the posterior margin, the second segment longitudinally wrinkled and with a very slight transverse furrow, the succeeding segments with no transverse furrow, the third segment closely punctured, with the apical margin smooth, fourth and succeeding segments impunctate.

Type.—University of Kansas.

Type locality.—Lawrence, Kansas.

One ♂ taken at twilight in June, by E. S. Tucker.

Harrimaniella pseneimitatrix Vier.

One ♀ from the type locality taken in October, by E. S. Tucker.

Sychnoportus tuckeri Vier.

One ♀ taken at night in May, at Lawrence, by E. S. Tucker. This specimen differs from the type as follows: scape brown, flagellum with the basal half largely pale brown, the apical half dark brown; third abcissa of the cubitus parallel with the radius.

Cryptus albitarsis Cress.

♂ var. taken at night in May, at Lawrence, by E. S. Tucker. This specimen differs from the type in having the scutellum immaculate.

Phæogenes fungor Nort.

Ichneumon (cratichneumon) extrematatis Cress.

One ♀ taken in Douglas Co., 900 ft., in October, by E. S. Tucker.

CHALCIDOIDEA.

Metapon rufipes Ashm.

One ♀ taken in Morton Co., 3200 ft.

Eutrichosoma mirabile Ashm.

One specimen, Hamilton Co., 3350 ft.

Perilampus platygaster Say.

Two specimens, Wichita, September (U. of K., lot 663). One specimen, Sedwick Co., 1300 ft., Sept. (E. S. Tucker, U. of K.).

Perilampus hyalinus Say.

One specimen, Douglas Co., 900 ft.

Spilochalcis mariae Cress.

One specimen, Douglas County, May (S. J. Hunter); (U. of K., lot 727).

Spilochalcis torvina Cress.

One specimen, Douglas Co., 900 ft., Oct. (E. S. Tucker).

Spilochalcis delumbis Cress.

One specimen, Douglas Co., 900 ft.

Spilochalcis bioculata Cress.

One specimen, Clark Co., 1962 ft., June, 1902.

Chalcis ovata Say.

Two specimens, Douglas Co., 900 ft.; two specimens, Morton Co., 3200 ft.

CYNIPOIDEA.

Aspicera albihirta Ashm.

One specimen, Morton Co., 3200 ft.; two specimens, Lawrence, at night and at twilight, June (E. S. Tucker).

Figites coloradensis Ashm.

One specimen, Morton Co., 3200 ft.; Hamilton Co., 3350 ft.

PROCTOTRYPOIDEA.

Scelio monticola Brues, sp. n.—"*Female.*—Length 4.25 mm.—Black, with the legs, except coxæ, and the first two joints of antennæ reddish yellow. Head about twice as wide as thick antero-posteriorly; face slightly but distinctly produced medially above and between the antennæ. Front and vertex rugosopunctate, the face with strong transverse striations, which curve down a little laterally. Antennal scape thick, pedicel a little longer than the first flagellar joint, the remaining joints strongly transverse, three times as wide as long, except the last two. Mandibles piceous, palpi short. Pronotum finely rugulose; mesonotum shining, with distinct furrows, striate along the median line, laterally but within the furrows reticulated and outside the furrows also smooth with a few punctures. Scutellum shining, faintly punctate or striate. Metanotum longitudinally rugose, its lateral angles rather prominent and slightly produced. First and second segments of abdomen each twice as wide as long, third and fourth longest, subequal, all longitudinally aciculated especially the petiole Legs reddish yellow, the coxæ black. Wings slightly infuscated, stigma distinct but without any trace of a stigmal vein."

"Two specimens, both females, Hamilton Co., Kansas (3350 ft.), and Morton Co., Kansas (3200 ft.), both collected by Prof. F. H. Snow."

"The present species falls in the group with *adipodæ* Ashm. and *striaticollis* sp. nov., from both of which it differs in sculpture, form of metathoracic angles and structure of the head."

VESPOIDEA.

Mutilla (Timulla) vesta Cress.

Wallace Co., 3000 ft. This is a variety with an inverted Λ-shaped area of dark hairs from the apex of the second to the fourth abdominal segment isolating a central cone shaped area of silver hairs.

Mutilla marpesia Blake.

Morton Co., 3200 ft., June. With the anterior angled, the thorax somewhat spined.

Mutilla (Timulla) montivagoides n. sp.

Related to *montivaga*, from which it is distinguished by the black hairs of the venter of abdomen.

♀.—10 mm.—*Head.*—Rather quadrate, not wider than the thorax, somewhat narrower, coarsely punctured, the punctures mostly adjoining some confluent, no buccal carina, malar space as long or nearly as long as one and a half times the greatest diameter of the eye, pedicellum and first joint of flagellum together a little longer than joints 2 and 3 of the flagellum, joint 1 of the flagellum a little shorter than joints 2 and 3 combined.

Thorax.—Subquadrate, the greatest length thereof about equal to the greatest width of the thorax, dorsum punctured much like the head, the junction of the dorsum with the pleura not carinate rather crenulate, the pleura with rather well-separated deep punctures of a size greater than the interstices.

Abdomen.—First dorsal segment slightly convex, appearing fused with the second segment rather sparsely punctured, some of the interstices being several times the width of the punctures, sculpture of the second dorsal segment apparently closely punctured, the punctuation hidden by the pubescence, succeeding dorsal segments, apparently more finely sparsely punctured than the second dorsal segment, especially is this true of the fourth dorsal segment, the disc of which is visible in the type, first ventral segment with a rather undulate longitudinal carina, the second ventral segment with well-separated punctures of rather large size, the interstices usually a little wider than the punctures, the succeeding ventral segments with adjoining or nearly adjoining punctures. Pygidium with fine apparently concentric wrinkles.

Color.—Ferruginous, scape and pedicellum, mandibles at base and apex very dark brown, appearing rather black, flagellum brown, dorsum of head, thorax and second abdominal segment covered, almost to the extent of hiding the sculpture, with appressed golden hairs, interspersed rather sparsely with rather erect black hairs; legs, suture between first and second dorsal abdominal segments, apices of abdominal segments, practically all of the exposed portion of the dorsal segments beyond the second and all of the ventral segments beyond the third, black; sides of head and thorax, dorsum of first abdominal segment and venter of abdomen clothed with rather erect and sparse black hairs.

Type.—University of Kansas.

Type locality.—Hamilton Co., Kansas (F. H. Snow).

Mutilla prognoides n. sp.

Related to *orcus* and *leda* with the color pattern of *magna*. Superficially like *progne*.

♀.—16 mm.—*Head.*—Quadrate, as wide as the thorax, excluding the temples, and space adjoining eye closely rather rugosely punctured, no carinæ, the malar space a little longer than the greatest diameter of the eye, pedicellum a little shorter than the second joint of the flagellum, the first joint of the flagellum a little longer than the two succeeding joints together.

Thorax.—From above rather ovoid, the greatest length of the same distinctly greater than the greatest width of the thorax, dorsum with large shallow almost adjoining punctures, prothorax with a longitudinal rather undulate carina on the pleura anteriorly, the junction of the dorsum with the pleura not carinate, rather crenulate, pro- and mesopleura practically rugoso-punctate, the impressed space between pro- and mesopleura tessellately punctured, metapleura shining, largely impunctate, posterior face of metathorax dull, rather reticulate.

Abdomen.—First dorsal segment dull, reticulate, second dorsal segment shining, with shallow, almost confluent punctures, the succeeding dorsal segments, except the ultimate, have their sculpture hidden by pubescence more than the second segment, pygidium finely longitudinally striate, the striæ almost straight; first ventral segment carinate, the carina produced into triangular projections or teeth that about divide the carina into thirds, the anterior tooth longer than the posterior one, the second ventral segment punctured and shining, much like the corresponding dorsal segment, the succeeding ventral segments very closely punctured and dullish.

Color.—Black, dorsum of head, thorax and abdomen, the latter inclusive of the first segment, covered with a rather dense ochreous appressed pubescence that almost or actually obscures the sculpture, in addition the dorsum of the head has sparse erect black hairs and abundant erect ochreous hairs, dorsum of thorax and abdomen, the latter, excepting first segment, with abundant erect ochreous hairs; greater part of head and thorax sparsely covered with black hairs as are the first dorsal, basal fifth of second dorsal and the second ventral segments, beyond the second segment the ventral segments are rather densely clothed with black pubescence.

Type.—University of Kansas.

Type locality.—Hamilton Co., Kansas (F. H. Snow).

A series of six paratypes with these data, type locality June, 1902 (F. H. Snow); Wallace Co., Kansas (F. H. Snow), show variation from the type in color and size, the color from pale ochreous to fulvous, the size from 11 mm.–13 mm.

Mutilla (Timulla) nigricauda n. sp.

Related to *montivaga*, from which it differs in having all the abdomen, except the second segment, black.

♀.—10 mm.—Differs from *M. montivagoides* as follows: crest black, hairs on head rather sparser, dorsulum with erect black hairs confined to the anterior and lateral margin, the same holds true for the second dorsal abdominal segment as for the dorsulum; pygidium roughened but not distinctly wrinkled. Greater part of head, thorax and second dorsal abdominal segment ferruginous, head, thorax and second dorsal abdominal segment with the dorsal aspect covered with golden pubescence.

Type.—University of Kansas.

Type locality.—Clark Co., Kansas.

Collected in May (F. H. Snow).

Mutilla (Photomorphus) quintilis n. sp.

Easily distinguished by the entirely black color.

♂.—9 mm.—*Head.*—Typical, covered with loose silvery pubescence

Thorax.—The anterior lateral margin of prothorax rounded, not distinctly ridged, mesosternum on each side of the median furrow produced into a short, rather truncate, edentate process. Metanotum with no distinct shining bisected area, rather imperfectly reticulate and roughened. Pubescence of the dorsum of thorax apparently more yellowish than on the dorsum of the head. Cubitus of the anterior wings distinctly angled at the insertion of the first transverse cubitus; second transverse cubitus received by the radius just before its middle.

Abdomen.—Felt line on dorsum of second segment extending within but a very short distance of the anterior and posterior margins of this surface, the felt line on the venter of second segment about half as long as that on the dorsum. No tubercle between fifth and sixth ventral segments, the apical ventral segment smooth and shining, sparsely punctured in the middle, rather closely so on the lateral margins and the posterior margin.

Color.—Black, with the mandibles, antennæ, legs, margins of abdominal segments and apical spines more or less brown.

Remarks.—In describing this species it was compared with the type of the subgenus, therefore characters common to the type and it were not redescribed. The pubescence in this species is almost uniformly whitish or rather silvery, the only departure being a slight yellowish tinge on the dorsum.

Type.—University of Kansas.

Type locality.—Douglas Co., Kansas, 900 ft.

One ♂, collected in July (U. of K., lot 61).

Mutilla (Photomorphus ?) crepuscula n. sp.

Intermediate between *Photomorphus* and *Odontophotopsis*. The anterior ocellus being distinctly larger than a posterior ocellus.

♂.—5 mm.—*Head.*—Typical.

Thorax.—The anterior lateral margin of the prothorax bounded by a faint ridge; punctures of pronotum shallow, distinct and rather sparse, the punctures 1-3 or more puncture widths apart; propleura with a few shallow rather indistinct punctures: mesonotum about as sparsely punctured as the pronotum, but the punctures somewhat larger and more distinct, parapsidal grooves absent; scutellum and postscutellum rather rugose but shining; mesosternum anteriorly on each side of the median furrow developed into a transverse crenulate ridge, which, at the furrow, is rather acute angled and directed downwards and backwards; metathorax, excepting metanotum and pleura, distinctly reticulated, the space about as large as a lateral ocellus; metanotum with a longitudinal smooth space about twice as long as broad at the base and one and a half times as broad at apex as at base and divided into two equal parts by a longitudinal distinct raised line or septum; metapleura smooth and shining; first submarginal cell about as large in area as the second submarginal cell, but somewhat longer than the latter cell, cubitus forming an obtuse angle at the insertion of the first transverse cubitus and forming a more obtuse angle at the junction of the recurrent nervure with it, first transverse cubitus forming an acute angle with the radius to which it joins, so that the first abcissa of the radius is only about as long as the third antennal joint, the second abcissa of the cubitus about twice as long as the first abcissa.

Abdomen.—Petiole typical, with sparse shallow punctures from six to eight, and in some places more puncture widths separating the punctures, second segment polished and punctured, the punctures separated as on the petiole, the felt line or impression running nearly parallel with and just within the lateral margin of the second dorsal segment extending nearly all the way from the anterior to the posterior margin of this surface, the corresponding line on the second ventral segment about one-third the length of this latter segment; the segments beyond the second practically impunctate on the dorsum, rather indistinctly punctate on the venter, sixth ventral segment rather flat, smooth and distinctly punctured, the punctures in the centre about as sparse as on the dorsum of the second abdominal segment, adjoining near and above the posterior margin.

Pubescence almost in to fine and silvery, that of the dorsum about as long as the eye and about as sparse as the punctures, sides of the body with shorter concolorous pubescence on the venter, and to a great extent on the legs it is nearly as long as on the dorsum.

Color.—Sort of a dark testaceo-ferruginous, excepting the abdomen beyond the petiole, part of the petiole, a spot within the ocelli, a spot on each side of the prothorax, femora, tibiæ, middle and posterior metatarsi, all of which are more or less dark brown, ocelli yellowish, eyes black, antennæ, coxæ, trochanters and tarsi more or less brownish testaceous, mandibles brownish testaceous, brown at tip.

Type.—University of Kansas.
Type locality.—Morton Co., Kansas.
One male specimen collected by F. H. Snow.

Mutilla halcyone Fox.

One ♀ taken in Hamilton Co., at an elevation of 3350 ft. This specimen is not typical, but seems to differ from the type only in the hairs on the second abdominal segment being sparser and in the distinctly visible punctures of the same segment.

Mutilla (Photopsis) imperialiformis n. sp.

Readily distinguished from its ally *imperialis* by the entirely black head and thorax, sculpture, etc.

♂.—7 mm —*Head.*—Thorax and abdomen typical of the group to which it belongs; parapsidal grooves distinct nearly all the way from the anterior to the posterior margin of the dorsulum; metanotum with an almost quadrate shining space which is, as the area in this region usually is, bisected by a longitudinal raised line almost forming a ridge; wings uniformly fuscous, the only departure from this being a hyaline streak from the base of the stigma across the first submarginal cell to the junction of the first transverse cubitus with the cubitus, from this latter point obscurely across the second submarginal cell to the junction of the second transverse cubitus with the cubitus and merging into a hyaline spot adjoining the second submarginal cell; felt line of the second dorsal abdominal segment extending from near the anterior margin of the segment to a point near the posterior margin, each extremity being removed from a margin for a distance about as long as the terminal tarsal joint on the posterior legs; the felt line on the second ventral abdominal segment rather indistinct and only about as long as the terminal tarsal joint of the posterior legs; the terminal ventral abdominal segment nearly flat, with a shallow median longitudinal concavity, from very sparsely punctured along the middle to closely punctured along the lateral and posterior edges.

Antennæ and mandibles very dark brown, the latter tipped with black, second and third abdominal segments with an apical margin of golden brown, the succeeding segments entirely golden brown, otherwise the abdomen is black, excepting the tarsi, which are dark brown.

Type.—University of Kansas.
Type locality.—Morton Co., Kansas, 3200 ft.

One ♂ taken in June, 1902, by F. H. Snow, another ♂ (paratype) from Nogales, Arizona, July 7, 1903 (Osler), is in the collection of Cornell University.

Chyphotes (Milluta ?) peculiaris Cress.

One ♀ specimen from Clark Co., 1962 ft. This specimen is not typical, and may prove to be a variety or race of the typical form.

Brachycystis stictinotus n. sp.

The distinctly punctured thorax and ridged metathorax serve to distinguish this species from *indiscretus*, to which it is related.

♂.—8 mm.—*Head.*—Smooth and shining, almost polished with a few punctures; scape a little shorter than the first joint of the flagellum, the pedicellum about one-fourth the length of the first joint of the flagellum; in other respects practically as in *indiscretvs.*

Thorax.—Dorsulum distinctly but very sparsely punctured; metathorax almost entirely smooth, impunctate and shining, the metanotum slightly elevated, longitudinally along the middle, the elevation practically forming segment of a cylinder; wings almost as in *indiscretus*, but the second submarginal cell is just sessile, and the third submarginal cell is apparently longer than high.

Abdomen.—Almost exactly as in *indiscretus.*

Brown, pleura, coxæ, femora and first abdominal segment darker by far than the other brown portions, palpi somewhat whitish testaceous, mandibles testaceous, tipped with brown, antennæ dull testaceous, tinted with brown, anterior legs testaceous, all tarsi concolorous with the anterior legs, middle and posterior tibiæ testaceous, in part partly brown, head black, abdomen, excepting the first segment, very dark brown, almost black in appearance.

Type.—University of Kansas.

Type locality.—Clark Co., Kansas, 1962 ft.

One ♂ specimen taken in June.

Elis (Trielis) pollenifera n. sp.

♀.—22 mm.—*Head.*—The sculpture of the posterior aspect of the head hidden by pubescence, cheeks, temples and vertex polished and impunctate, excepting for a few scattered punctures near the posterior and lateral boundaries of the vertex, front somewhat protuberant from the emargination of the eyes to the vertex and between the insertion of the antennæ and the ocelli, most of the front with almost adjoining punctures all of which are deep and well developed, in some portions of the front, especially near the ocelli and near the eyes, the punctures are as much as five puncture widths apart, a short, deep, rather broad longitudinal sulcus traverses the front from a point as far from the anterior ocellus as the latter is wide to a point as from an imaginary line drawn through the posterior margin of the antennal foramina as the anterior ocellus is wide; clypeus rather convex and coarsely punctured, the punctures adjoining along the margins in the middle as much as three and four puncture widths apart and on rather nodose elevations of the tegument, the anterior margin slightly reflexed, somewhat membranous, with the anterior and lateral edges forming an undulating line; scape shining, sparsely punctured, as long as the four succeeding antennal joints combined, pedicellum about as long as the fourth antennal joint, third antennal joint a little shorter than the fourth.

Thorax.—Lateral aspects of the pronotum with strong, deep, almost adjoining punctures, the anterior aspect thereof smooth, polished and impunctate; dorsulum shining, with a large central area impunctate, adjoining this area and to the margin the surface is punctured in much the same way as the lateral aspects of the pronotum, excepting for the limited space traversed by the rather deeply impressed parapsidal grooves, which attain the posterior margin of the segment, but fall short of the anterior margin by about one-third the length of the segment; scutellum shining, almost impunctate, bisected by a longitudinal furrow, the few punctures on its surface being along the margins and the longitudinal furrow; postscutellum with the same sculpture scheme as the scutellum; superior and posterior aspects of the metathorax smooth, shining and with deep almost adjoining punctures; wings fuscous, with a violaceous reflection, the apical acute angled portion of the median cell, the first submarginal and the basal acute angled portion of the marginal cell yellow, the nervure adjoining this yellow area light brown, the other nervures and portions of nervures dark brown.

Abdomen.—The segments with much the same scheme of punctuation as the dorsulum, the pygidium, however, very closely apparently striate punctate.

Pubescence reddish, inconspicuous or absent, excepting for a fringe around the insertion of the antennæ, the posterior aspect of the head, the lateral aspects of the pronotum, pro- and mesopleura, coxæ, trochanters, femora, tibiæ and metatarsi, abdominal segments at base, apex and laterally, pygidium covered with short appressed golden bristles.

Black; legs, excepting coxæ and trochanters, which are black or blackish, more or less dark brown, spurs testaceous or brownish testaceous, second dorsal segment with each lateral third, almost completely occupied by an almost circular yellow mark, a more oval yellow mark on each side of the third dorsal segment occupying all but about the middle fifth of the segment, on the fourth dorsal segment the oval yellow marks occupy nearly all of the segment, being separated only by a T-shaped brown area, the fifth dorsal segment brown, the ventral segments black and brown.

Type.—University of Kansas.

Type locality.—Hamilton Co., Kansas.

One ♀, the type collected by S. J. Huntér, another ♀ (paratype), from the collection of Wm. J. Fox, collected in Wallace County, Kansas, 3000 ft., by F. H. Snow.

The paratype differs from the type in having the frontal sulcus reduced to a pit, with a shallow groove extending laterally therefrom almost at right angles, in having a slight median longitudinal impression on the vertex and dorsulum and a less pronounced longitudinal groove on the scutellum, the pygidium, which has the hair rubbed off, is dull and rather shallowly, closely punctate, median, submedian and part of second discoidal cell yellow.

Variety a.—♀.—Structurally different from the type in being almost exactly like the paratype and differing from both in having the pubescence golden instead of reddish.

Type.—University of Kansas.

Type locality.—Hamilton Co., Kansas.

One ♀ taken in July, by S. J. Hunter.

Variety a.—♂.—*Head.*—With a transverse smooth almost impunctate space behind the posterior ocelli, a smooth impressed transverse band anterior to the anterior ocellus divided longitudinally by a raised line, otherwise the tegument is more or less closely punctured; clypeus convex, with almost adjoining punctures and a smooth depressed anterior margin.

Thorax.—Dorsulum punctured all over, the anterior half dull, and with adjoining punctures, the posterior half shining and with many of the punctures three and five puncture widths apart: scutellum and postscullum with adjoining or nearly adjoining punctures and longitudinally impressed in the middle.

Abdomen.—Dorsal abdominal segments more closely and finely punctured than the posterior half of the dorsulum.

Pubescence and color much the same as in the ♀, differing chiefly as follows: Clypeus with a yellow spot each side of the middle, lateral portions of the pronotum with a yellow mark parallel with and near the superior margin, tegulæ with a yellow spot, scutellum with a triangular yellow mark, postscutellum yellow, a median longitudinal yellow line on the metathorax, third and fourth ventral abdominal segments with a yellow spot on either side, yellow spots on the third dorsal segment almost touching, fourth and fifth dorsal segments with yellow bands anteriorly incised, sixth dorsal with an indistinct band-like yellow mark.

Notozus connexus n. sp.

In structure very like *marginatus*, in color and size like *viridicyaneus.*

6 mm.—*Head.*—Punctured almost exactly as in *marginatus*, the frontal excavation smooth and to a great extent impunctate, vertex with some of the punctures distinctly separated from each other by polished impunctate spaces.

Thorax.—Pronotum with part of the anterior half with such small shallow close punctures as to appear rugulose, the greater portion, however, with somewhat larger punctures than the vertex, the punctures being adjoining or one to two puncture widths apart, mesonotum almost entirely punctured like the coarsely punctured portion of the pronotum; scutellum reticulated, the meshes deeper than the punctures on the mesonotum and about three times as large; postscutellum somewhat more coarsely tessellate than the scutellum, the meshes deeper, the processes viewed from the side forming a right angle with the posterior aspect of metanotum, rounded at apex and like a finger in outline; metathorax rather reticulate like the postscutellum.

Abdomen.—Punctures of the first dorsal segment a little smaller than the punctures on the vertex and separated from each other by one to two puncture widths of shining space; the second dorsal segment punctured much the same as the first; apical dorsal segment with adjoining punctures about as large, but not so distinct as the punctures on the second dorsal segment; the truncature of the apical abdominal segment reniform bounded by a raised line and about twice as wide as long antero-posteriorly.

Type.—University of Kansas.
Type locality.—Clark Co., 1962 ft., Kansas.
One specimen taken by F. H. Snow.

Chrysis (Gonochrysis) kansensis n. sp.

Related to *perpulchra.* Foveæ of metanotum smooth, parts at apex of abdomen not distinctly impressed.

7 mm.—*Head*.—With adjoining punctures that average a little less than one-fourth the size of the anterior ocellus, frontal excavation transversely striate, with a round depression or elevation about the size of the anterior ocellus near the short ridge that bounds the excavation superiorly, a small shining impunctate space adjoining the lateral ocelli along the portion nearest the posterior and lateral aspect of the head.

Thorax.—Pronotum punctured very like the front; the mesonotum not quite so closely and a little more coarsely punctured than the pronotum; scutellum and postscutellum not shining like the other segments of the thorax, rather dullish, the punctures adjoining and about as large as those on the mesonotum, postscutellum slightly arched.

Abdomen.—First dorsal segment punctured nearly like the mesonotum, the punctures a little more distinct and slightly separated, the second and terminal dorsal segments punctured more like the front, apical margin of the dorsum of the abdomen slightly undulate, interrupted in the middle by an emargination that is about twice as wide as deep, the subapical dorsal impressions represented by about fifteen rather deep, equally separated punctures.

Pubescence as usual.

Green, with bluish reflections, especially on the sutures and the abdomen above.

Type.—University of Kansas.

Type locality.—Morton Co., Kansas, 3200 ft.

One specimen taken by F. H. Snow.

Chrysus (Tetrachrysis) equidens n. sp.

Related to *dorsalis.* The teeth at apex of abdomen of equal length.

6 mm.—*Head.*—With adjoining shallow punctures, simulating meshes of a reticulation, the puncture a little less than one-third the size of the anterior ocellus, frontal depression smooth, its lateral margins bearing a few punctures smaller than on the vertex but apparently deeper.

Thorax.—Pronotum punctured much like the vertex, the remaining portion of the dorsum with more distinct though equal sized punctures, that above narrow spaces between them.

Abdomen.—Dorsum shining and with punctures after the fashion of those on the mesonotum; subapical depressions on the apical dorsal segment rather irregular, somewhat confluent, the individual pits separated from each other by slight elevations of the tegument, apical teeth about half as long as the distance between the latero-median teeth, distance between a latero-median tooth and a lateral tooth a little greater than the distance between the latero-median teeth, the tips of the latero-median teeth nearly as far removed from the tip of the lateral teeth as the latero-median teeth are from each other, lateral margin of the apical dorsal abdominal segment with distinct outward curve, then an inward curve, then an outward rounded angle, then an inward curve.

Pubescence as usual.

Color green, with bluish reflections.

Type.—University of Kansas.

Type locality.—Morton Co., Kansas, 3200 ft.

One specimen, collected by F. H. Snow; another taken in Kansas by the same collector has the blue predominating.

Chrysis (Tetrachrysis) kahli n. sp.

Related to *frey gessneri.*

6 mm.—*Head.*—As in *frey-gessneri.* Thorax in general punctured like the head. Lateral teeth of metathorax very prominent, acute and practically at right angles to the same. Dorsal aspect of metathorax in the lower half rather coarsely, irregularly grooved or scooped out. First abdominal segment about as long as the terminal or third abdominal segment, with a shallow channel in the middle of the dorsum. This channel not extending much more than half way toward the apex. On either side of this channel, and in the channel itself, the punctures are distinctly separated from each other. The spaces between are one puncture or less in width Laterally, the punctures become adjoining and give the segment a regular appearance. The second dorsal segment is as long as the combined length of the first and third dorsal segments, punctured throughout, nearly as the first segment near the lateral margin. The lateral margin of this second segment is punctured like the lateral margin of the first segment. Thus the entire second segment has a rugulose appearance, which is, however, not so marked along the middle of the segment as along the lateral margin.

The third dorsal segment punctured like the second dorsal segment, with a series of eleven very distinct, almost circular, deep, separated punctures or pits. These punctures are from less than one of these puncture widths to two of these puncture widths apart. The lateral margin is sinuate, with two troughs and two crests. The first trough one-quarter the distance from the base (one-quarter the length of the lateral margin from the base). The second three-quarters the length of the lateral margin from the base.

The undulations are very gentle and not deviating far from the straight line. Apex nearly as in *freygessneri.* The external teeth are directed toward the middle line, and distinctly shorter than the middle teeth, which are directed straight back. The emarginations forming these teeth subequal in width. The lateral emarginations forming a segment a little more than a semi-circle. The median emarginations practically forming two sides of an equilateral triangle.

Type.—University of Kansas.

Type locality.—Kansas.

One specimen, collected by F. H. Snow.

Chrysis (Tetrachrysis) pattonella n. sp.

Related to *pattoni.* Median teeth at apex of abdomen as far from each other, or nearly, as from the lateral teeth.

6 mm.—Basin of face punctured, excepting for a very short distance on either side of the median ridge, which occurs for a short distance along the middle of

the face half-way between the insertion of the antennæ and the anterior ocellus. This is a rather slight longitudinal ridge. Half way between the upper edge of this ridge and the anterior ocellus there is a transverse arch extending nearly from eye to eye and forming practically three sides of an octagon. Above this ridge the tegument is practically reticulated as far as the vertex, temples and cheeks The distance between the posterior ocelli is about one and one-half times as great as the distance between the posterior ocelli and the anterior ocellus. This latter distance being practically equal to the distance between the posterior ocelli and the nearest eye margin.

The dorsum of the thorax reticulated in much the same way as the dorsum of the head. The reticulations on the dorsulum, scutellum and metanotum somewhat coarser than on the pronotum. The lateral angles of the metathorax are acute, slightly curved and directed backward, downward and outward

The first abdominal segment with a very shallow median impression extending nearly to the posterior margin along the middle of the first dorsal segment, the punctures are separated in much the same way as in the preceding species. The basal half of the second dorsal abdominal segment is of a rather rugulose character, the punctures adjoining each other. On the posterior half the punctures are separated. The spaces between them, however, are not more than a puncture's width apart. The apical dorsal abdominal segment is punctured in much the same way as the preceding segment. Laterally the abdominal segments are rather reticulated like the dorsum of the head and thorax. The sulcus of the apical dorsal segment has a series of pits irregularly separated (when separated), mostly confluent. The lateral margin and the posterior margin with much the same pattern as in *kahli*.

Color.—Green.

Legs and venter of abdomen with bluish reflections.

Type.—University of Kansas.

Type locality.—Hamilton Co., Kansas, 3350 ft.

One specimen, collected by F. H. Snow.

Chrysis (Tetrachrysis) snowi n. sp.

Related to *cærulans*. Readily distinguished by the white pubescence in the basin of the face.

11 mm.—*Head.*—Scarcely as in its ally; frontal excavation distinctly margined above, covered with adjoining shallow punctures or rather somewhat rounded indentations, these are so small that it would take about six to ten of them in a line to span transversely the first joint of the flagellum, a triangular area with its base at the superior boundary of the frontal excavation, and its apex on the median line about half way between the anterior ocellus and the interspace between the insertion of the antennæ has larger nearly circular depressions, the frontal depression has the sculpture of the lower two-thirds obscured in certain lights; vertex and occiput about twice as coarsely punctured as the triangular area of the frontal depression.

Thorax.—Somewhat more coarsely punctured than the vertex.

Abdomen.—More distinctly punctured than the dorsulum, but its punctures not larger, nor as close together; pits of the apical dorsal segment confluent, forming two grooves, one on either side of a median portion as high as and continuous with the elevated portion of the segment, the grooves indistinctly, equally parted by low raised lines across the shortest diameter, teeth sharp, nearly as long as the distance between the latero-median and lateral teeth, the latero-median teeth about one and a half times as far apart as the latero-median and lateral teeth.

Almost uniformly metallic green and covered with conspicuous white pubescence, the hairs of which are about as long as the penultimate joint of the flagellum, and while abundant, not sufficiently close together to at all obscure the tegument.

Type.—University of Kansas.
Type locality.—Clark Co., Kansas, 1962 ft.
One specimen, taken in May by F. H. Snow.

Odynerus (Ancistrocerus) bustamenti Sauss., ♀.

Hamilton Co., 3350 ft. (F. H. Snow).

One specimen, with only a slight indication of yellow on the postscutellum.

Odynerus delodontus s. sp.

Related to *blandus*. Superficially like *toas*. Has no tooth back of the postscutellum.

♀.—11 mm.—*Head.*—Clypeus convex, with elongate almost adjoining punctures, truncate at tip, the truncation rather rounded out and bounded on each side by a short tooth, the remainder of the head with practically adjoining punctures, which are smaller than those on the clypeus and not elongate as there.

Thorax.—Punctured almost exactly like the head exclusive of the clypeus; postscutellum and metathorax almost as in *blandus*, the metathorax, however, has no crest or any elevation whatever where it comes in proximity with the postscutellum, and the excavation is not strigose but covered with rather indistinct shallow adjoining punctures.

Abdomen.—As in *blondus*, but the dorsum is convex, not depressed and with the punctures not so scarce and close as those on the thorax; the punctures of the second dorsal segment smaller and closer than those on the first dorsal segment, the posterior margin of the second dorsal segment very slightly reflexed.

Color.—Differs from *blandus* as follows: clypeus with a line on the posterior margin, no line between the eyes, line of yellow between the superior and posterior aspects of the metathorax and the lateral aspect of the metathorax; first, third, fourth and fifth ventral and fourth and fifth dorsal abdominal segments without yellow, mark on the second dorsal segment present as round spots about half the size of the clypeus and free, the second ventral segment with no yellow excepting the rather narrow apical band.

Type.—University of Kansas.
Type locality.—Clark Co., Kansas, 1962 ft.
One female specimen, taken by F. H. Snow.

Odynerus egregius n. sp.

Related superficially to *annulatus*. The elevated or convex portion of the second dorsal abdominal segment practically impunctate. The abdomen velutinous.

♂.—11 mm.—*Head.*—Clypeus as broad as long, with its punctures one and two puncture widths apart, punctures of the face larger than on the clypeus, but similarly spaced, the punctures on the vertex and cheeks smaller than on the face and as much as five puncture widths apart; the clypeus truncate anteriorly, with the faintest indication of a tooth on either side.

Thorax.—Punctured much like the face; postscutellum with a slight transverse crest.

Abdomen.—The exposed portion of the third and succeeding dorsal abdominal segments coarsely punctured like the posterior margin of the second dorsal segment which is not at all reflexed.

Color.—Testaceo-ferruginous: space between the eyes above the emargination, a short band extending from the insertion of the antennæ almost to the upper part of the anterior margin of the eye, being separated therefrom by a yellow line, and parallel with the lower margin of the emargination, fifth and succeeding joints of antennæ, posterior aspect of the head, internal margin and tips of the mandibles, anterior fourth of the mesonotum, sutures of the thorax, longitudinal median line on the metathorax confluent, with a transverse oval area of black, and basal portion of abdominal segments black; face, including the clypeus, and excepting the black portion already described, dull yellow, scape anteriorly concolorous, with pale portion of face; narrowed portion of pronotum, spot on anterior and posterior margin of tegulæ, the posterior half of the superior division of the mesopleura, femora at tips, tibiæ anteriorly and the apical margins of the abdominal segments, excepting the terminal segment, yellow, pedicellum and two succeeding joints of the antennæ, brownish, antennal hook dark brown.

Type.—University of Kansas.

Type locality.—Morton Co., Kansas, 3200 ft.

One male collected by F. H. Snow.

Odynerus subtoltecus n. sp.

Related to *toltecus*.

♀.—*Head.*—As in *toltecus*

Thorax.—As in *toltecus*, but the postscutellum not at all carinated transversely.

Abdomen.—First segment not quite as wide as the second and with no depression above, the apical margin of the second dorsal segment not so decidedly reflexed as in *toltecus*, but reflexed so as to form an obtuse angle with the segment.

Color.—Black; a spot on each side of the posterior margin of the clypeus, a frontal spot in each sinus of the eyes, a spot back of the eyes, scape in front, a narrowly interrupted fascia on the pronotum, a spot at base of mandibles, posterior half of the superior division of the mesopleura, margin of tegulæ, a spot just behind the tegulæ, a spot near the middle of the posterior border of the dorsulum, postscutellum, apical margins on the first, second and fourth dorsal segments of the abdomen, the second ventral segment with a marginal spot on each side of the segment, apical third of anterior femora behind largely, apical third of middle femora in front largely, the tibiæ in front, excepting at apex, yellow, tibiæ at apex brown, the posterior pair black, behind they are all partly brown, mostly black, greater part of tegulæ brown; tarsi brown.

♂.—Very like the female, the vertex ordinary, not tuberculate, the reflection of the margin of the second dorsal abdominal segment forming an acute angle.

Color.—Differs from the female as follows: the yellow spot of the orbital sinus prolonged to the insertion of the antennæ, clypeus all yellow, mandibles yellow, excepting along the margins, middle coxæ and femora anteriorly yellow, tibiæ and metatarsi almost entirely yellow, no yellow spot on dorsulum, fifth and sixth dorsal abdominal segments with an apical band, second ventral segment with an apical yellow band, a lateral marginal spot of yellow on the third dorsal and ventral segments, antennæ brownish beneath.

Type.—University of Kansas.

Type locality.—Hamilton Co., Kansas, 3250 ft.

One female, collected by F. H. Snow; ♂ type and paratype taken in Colorado by F. H. Snow.

Odynerus leiouotus n. sp.

Related to *conformis.*

♀.—11 mm.—*Head.*—As in *conformis*

Thorax.—Likewise as in *conformis.*

Abdomen.—With the second segment reflexed, so as to form a right angle; no transverse rugose edge on the first dorsal segment.

Color.—Nearly as in *vagus*, but the arcuate line at summit of the clypeus is interrupted, all the dorsal abdominal segments, except the apical one, with the apical margin banded with yellow, while only the apical margin of the second ventral segment is margined, in other respects like *vagus;* the femora, however, are largely ferruginous, the anterior and middle pair partly yellow, and all the femora partly black.

Type locality.—Douglas Co., Kansas, 900 ft.

One female, taken in July, by E. S. Tucker.

Odynerus excentralis n. sp.

Differs from *bravo* chiefly in its livery and subgenerically.

♀.—11 mm.—*Head.*—No vertical carina on the clypeus joining it to the head.

Thorax.—Border of the metathorax almost rounded, not trechant.

Abdomen.—No suture on the first dorsal abdominal segment.

Color.—Differs from *bravo* as follows: mandibles largely black, antennæ black, flagellum brownish beneath, scape as in *bravo,* clypeus with a basal arcuate line broken in the middle, a dot on the tegulæ and a dot adjoining the same yellow, legs ferruginous, coxæ and trochanters black, anterior and middle femora tipped with yellow, anterior tibiæ with a yellow streak in front.

Type.—University of Kansas.

Type locality.—Morton Co., Kansas, 3200 ft.

One female, collected by F. H. Snow.

Odynerus microstictus n. sp.

Related to *anormis* and *propinquus*. Readily distinguished by the small sparse punctures of the clypeus.

♀.—10 mm.—*Head.*—As in the related species, but the punctures on the clypeus are smaller than those on the front and not so distinct, moreover, they are as much as four and five puncture widths apart.

Thorax.—As in the allied species.

Abdomen.—First abdominal segment narrower than the second, but wider than long; the second dorsal segment slightly depressed before the posterior margin.

Pleura, metathorax and abdomen distinctly sericeous in most lights, having an appearance similar to the bloom on grapes.

Color.—The same as in *anormis*, differing, however, as follows: clypeus with two yellow spots at base, a spot adjoining the emargination of the eyes, ventral segments, excepting the second and third, without an apical yellow margin, apical dorsal segment without yellow, coxæ and trochanters black, otherwise the legs are testaceo-ferruginous, a yellow spot at apex of anterior and middle femora and at base of the corresponding tibiæ, posterior tibiæ with the anterior aspect of the basal half yellow.

Type.—University of Kansas.

Type locality.—Clark Co., Kansas, 1962 ft.

One female, taken in June, by F. H. Snow.

Odynerus pænevagus n. sp.

Allied to *vagus*, from which it can be distinguished especially by its sculpture and color.

♀.—9 mm.—*Head.*—Nearly as in *vagus*.

Thorax.—Prothorax distinctly angulate, more coarsely punctured than the head, the punctures not more than one puncture width apart; dorsulum with punctures nearly as large as the punctures on the pronotum, with the punctures one to two puncture widths apart; metathorax nearly as in *vagus*, but the margins of the posterior aspect rather angulate.

Abdomen.—First dorsal segment distinctly truncate anteriorly, the punctures on the truncature sparse on the superior aspect adjoining or nearly; second dorsal segment as in *vagus*; on the second ventral segment the punctures are stronger and closer than on the anterior aspect of the first abdominal segment, the third ventral segment dullish, with small closer punctures than the second ventral segments. Apparently bare.

Color.—As in *vagus* to some extent; the departure from that type are as follows: scape behind and pedicellum more or less brown, clypeus yellow, excepting an arcuate brown to black line across the middle, excepting for the basal macula, the mandibles are brown, edges of the metathorax with a median yellow spot; third dorsal segment without yellow, fourth and fifth dorsal segments likewise, ventral segments, excepting the second, without yellow, the latter having a yellow triangular mark on each side of the posterior margin; legs as in *microstictus*, excepting the yellow line on the posterior tibiæ which is absent; a large reddish spot anterior to the yellow spot on the metathorax; the first abdominal segment excepting the yellow marks testaceo-ferruginous.

Type.—University of Kansas.
Type locality.—Clark Co., Kansas, 1962 ft.
One female captured in June, by F. H. Snow.

Odynerus percampanulatus n. sp.

Second abdominal segment above almost as in *toltecus*. Postscutellum bituberculate.

♂.—8 mm.—*Head.*—Very as in *toltecus*, vertex and front rather elevated and sparsely punctured, the punctures there of three to four puncture widths apart.

Clypeus.—With shallow, rather elongate punctures, one to two puncture widths apart. Prothorax distinctly margined anteriorly and angulate laterally on the anterior margin. The postscutellum with a salient transverse ridge, which is deeply emarginate in the middle, making the postscutellum bituberculate. Metathorax with the posterior aspect rather deeply concave, the basin so formed not surrounded by a very distinct crest. Very closely, coarsely punctured, with a rather rugose appearance and dullish white. The pleura have most of the punctures separated by a shining tegument. The pronotum and dorsulum with stronger, close punctures than are found on the face. The pleura punctured in much the same way as the dorsulum, with the anterior margin forming quite a salient ridge. The scutellum rather rugulose, with a median longitudinal furrow. The abdomen is much as in *toltecus*, but the first segment is rather compact and not in the form of an elongate bell, and is not quite as wide as the second, nor has it a shallow depression above. The edge of the third segment, while by no means so decidedly reflexed as the edge of the second segment, is, however, slightly reflexed. The punctuation of the first, second and third abdominal segments above is uniformly coarse, and the punctures but slightly separated by shining tegument. On the corresponding ventral segments the punctures are more separated.

The fourth, fifth and sixth dorsal segments are successively less distinctly and closely punctured, and with smaller punctures than the preceding, while the apical or ultimate segment is practically impunctate.

Color.—Ferruginous. Occiput, vertex, dorsulum, lower half of pro- and mesopleura, sutures of metathorax and extreme base of first, and second abdominal segments mostly black. Face yellow, excepting the black which extends from the insertion of the antennæ as a line to the black of the vertex and parallel or practically parallel with the lower margin of the eye emargination. The black of the vertex coming down on the face to an imaginary line drawn from a little above the beginning of the emargination of the eye above straight across to the corresponding point on the other side. Thus the black on the face isolates a central funnel shaped yellow mark, and lateral yellow marks filling the emarginations of the eyes.

Clypeus band at apex of first, second, third and fourth dorsal abdominal segments concolorous or nearly with yellow marks on face. The second ventral abdominal segment has a short yellow line on the apical margin of the segment laterally, and the yellow band on the fourth dorsal abdominal segment occupies only about the middle third.

The front of the scape, a spot on each side of the middle of the pronotum and the lower edge of the tegulæ are yellow, with a brownish cast. The posterior aspect of the scape and the flagellum are chiefly dark brown. The latter, however, is reddish beneath. The sutures of the pleura and sternum are black. The legs more of a testaceous ferruginous The second dorsal segment with a median longitudinal broad irregular dark brown band traversing the ferruginous portion. Apex of abdomen blackish.

Type.—University of Kansas.
Type locality.—Hamilton Co., 3350 ft., Kansas.
One male collected by F. H. Snow.

Polistes exclamans n. sp.

15 mm.—Related to *crinitus*, but readily distinguished by the maculate pleura. and by the immaculate dorsulum and by the brown spot on the clypeus.

Clypeus a little longer than broad, obtusely angulate anteriorly, the angle being somewhat rounded, with distinct scattered punctures on a roughened surface. Ocelli forming an equilateral triangle, the distance between them approximately three-fourths the distance between the lateral ocellus and the nearest eye margin. Anterior margin of the malar space approximately as long as the distance between the lateral ocellus and the eye margin. Prothorax with a distinct margin anteriorly.

Color.—Reddish brown, excepting in the following details: front, from the middle of the emargination of the eyes to the clypeus with a yellow spot extending from either side of the insertion of the antennæ to the eye margin, leaving rather an oblong transverse brown spot between the base of the clypeus and the insertion of the antennæ.

Clypeus yellow, excepting a rather large, median elongate spot which is brown.

The ocellar region is black.

A band from the base of the mandibles around the head.

The mandibles, excepting the margins, which are blackish, the margins of the prothorax, the greater part of the mesopleura, the tegulæ, excepting the margin, which is testaceous, the scutellum anteriorly and the small segment to either side of the scutellum anteriorly, the postscutellum, excepting the margins which are blackish, two parallel lines on the posterior aspect of the metathorax, on either side of the median sulcus extending nearly from the base to the apex, two oblique bands on the metapleura separated by a narrow oblique black band, oblique bands on the posterior aspect of the middle and posterior coxæ, the femora at tip, the tibiæ at base and the tarsi, the lateral and posterior margins of all the abdominal segments, excepting the apical and the dorsal abdominal segment are yellow. Anterior and middle tibiæ on the inner and outer aspects are yellow, on the upper half of the mesopleura, the yellow maculation is in the form of a rhomb and separated from the yellow maculation below. The anterior coxæ are yellow only in their anterior aspects. The pleura mostly and the metathorax where not maculated, black, as are the base of the second abdominal segment and the inner aspects of anterior middle and posterior coxæ. The yellow maculation on the scutellum forms two spots that leave a rather triangular brown area on the posterior half of this segment.

Wings.—Smoky brown, the infumation slight, excepting in the cells along the anterior margin of the anterior wings.

The apical segments of the abdomen largely brown.

Type.—University of Kansas.
Type locality.—Hamilton Co., Kansas.
One female collected by S. J. Hunter.

Cryptocheilus pæneparcus n. sp.

In structure almost exactly like *parcus* from Cuba, which, however, has the first 3 abdominal segments entirely red.

♀.—7 mm. long.—*Head.*—Very closely and minutely punctured. Ocelli forming an equilateral triangle. Distance between the posterior ocelli slightly less than between the lateral ocellus and the nearest eye margin. Third joint of the antennæ a little longer than the first and second joints combined, and a little longer than the fourth joint. The fourth and succeeding joints are subequal.

Thorax.—Minutely roughened, apparently impunctate. The dorsum of thorax mostly shining, excepting the metathorax, which is dull throughout. Pleura dull, but not as dull as the metathorax.

The wings are brownish, the brown intensified in the margins and second and third submarginal cells.

The basal nervure angulate, nearly as in the halictine bees. The transverse median nervure inserted into the median as far from the junction of the basal with the median as the transverse median is long.

The third abscissa of the radius a little longer than the first abscissa thereof. The second abscissa as long or nearly as the first and third combined. The subcostal nervure distinctly separated from the costal nervure so that a distinct linear costal cell is visible.

Stigma deep brown, as is the nervure bounding the anterior margin of the wings. The other nervures are more of a brownish testaceous.

Color.—Black.

First and second abdominal segments entirely reddish castaneous. The base of the third abdominal segment concolorous with the preceding.

Type.—University of Kansas.
One specimen, Douglas Co., 900 ft., Kansas
One female collected by F. H. Snow.

Anoplius (Pompilinus) snowi n. sp.

☿.—8 mm.—Black, with a slaty and whitish bloom, sericeous, with whitish appressed pubescence that in certain lights hides the integument which is shining and apparently impunctate.

Ocelli forming a low triangle, distance between the posterior ocelli distinctly greater than that between the anterior ocellus and the posterior ocelli. but not so much greater as the distance between them and the nearest eye margin.

Third joint of the antennæ is a little shorter, if anything, than the scape, which is approximately as long as the fourth joint. The second joint of the antennæ a little less than one-half the length of the fourth joint. The fifth and succeeding joints of the antennæ subequal.

The antennal joints, except the second, very distinctly demarcated. The anterior of the clypeus entire, as is the posterior margin of the pronotum. In addition to the appressed pubescence, there is a rather loose collection of rather erect and silvery hairs, especially around the head and pronotum.

The maxillary palpi are six jointed, with the second and fifth joints of nearly the same length, that is approximately of the same length of the second joint of the antennæ. The third, fourth and fifth joints subequal, each distinctly longer than the preceding. The first joint approximately half the length of the second joint. The labial palpi four jointed, with the joints subequal. The longest spur of the posterior legs approximately as long as the metatarsus.

Wings.—Hyaline, a rather broad fuscous margin at the tips. The nervures very dark brown, stigma pale brown. Transverse median nervure interstitial with the basal nervure. The third abscissa of the radius a little shorter than the second abscissa and a little longer than the first abscissa. Spurs, mandibles at base, band on the posterior aspect of the posterior tibiæ and the tip of the dorsum of the abdomen yellowish to whitish.

Type.—University of Kansas.

Type locality.—Morton Co., Kansas, 3200 ft.

One male collected in June, 1902, by F. H. Snow.

Aporus ferrugineipes n. sp.

The ferruginous femora and tibiæ of the posterior legs help to distinguish this form from its allies.

♀.—6 mm.—Black, covered with a grayish bloom, excepting a band across the pronotum just anterior to the posterior margin, the disk of the scutellum, a band across the first dorso-abdominal segment, all, excepting the apical band on the 2nd, 3rd and 4th dorso-abdominal segments without bloom, as are the apical two abdominal segments, the apical band on segments 2, 3 and 4 with a grayish bloom.

Anterior margin of the clypeus entire, scape approximately as long as the third joint of the antennæ. The second joint of the antennæ half the length of the third. The fourth joint of the antennæ a little longer than the third joint. The succeeding joints subequal. The pronotum with the posterior margin entire. The metathorax laterally in the middle prolonged into distinct short acute processes. The tegument is apparently impunctate.

Color.—Apical half of the mandibles is largely reddish, as are the posterior femora and tibiæ.

Type.—University of Kansas.

Type locality.—Clark Co., Kansas, 1962 ft.

One female collected in May (F. H. Snow).

Nysson clarconis n. sp.

Related to *albomarginatus*, *mellipes* and *pumilis*.

♂.—7 mm.—*Head*.—Distinctly punctured, the ocelli forming an equilateral triangle about an elevation of the vertex. The distance between the ocelli equal to or a little less than the distance between the posterior ocelli and the nearest eye margin. Third antennal joint as long as the second and a little shorter than the third, beyond which latter the joints are subequal. The clypeus is, along its anterior margin in the middle, produced into a short punctate process. The dorsulum has adjoining shallow punctures giving it an almost reticulated appearance. The mesopleura are sculptured in much the same way. The metathorax has an enclosure that is bounded on each side laterally by an area densely clothed by appressed silvery pubescence. In the median area there is a series of longitudinal grooves that do not extend as such to the apex. Laterally the metathorax at the middle of the junction of the posterior aspect and the pleura is prolonged into a spine which is directed backward, outward and upward. The abdomen has distinct separated punctures, which on the apical segments are almost confluent. The posterior tibiæ and apex are wider than the posterior femora. The projections on the apical abdominal segment are a little shorter than the space between them is wide. The color is black. The legs, excepting the tarsi and the coxæ and trochanters, which are blackish, the first abdominal segment, excepting the apical yellow margin, reddish. The scape, excepting the yellow spot, the mandibles, excepting the blackish margins and the basal sutures of the second dorso-abdominal segment laterally, and the second, third and fourth ventral abdominal segments basally all brownish.

The posterior margin of the pronotum, the tubercles and the scutellum, apical margin of the first and second dorso-abdominal segments, and a short apical band on each side of the dorso-abdominal segments 3, 4 and 5 yellow.

The black of the insect, as well as the reddish, is more or less covered by a sericeous pubescence which is silvery, excepting on the dorsulum, where it is golden.

Type.—University of Kansas.

Type locality.—Clark Co., Kansas, 1962 ft.

One male taken in June by F. H. Snow.

Didineis crassicornis n. sp.

Related to *texanus*, but is a more robust species with thicker antennæ.

♂.—6 mm.—Front with fine adjoining punctures. The punctures on the vertex equally fine but distinctly separated. The third antennal joint a little shorter than the fourth. The succeeding joints subequal and none of them especially thickened but cylindrical. The apical joint of the antennæ as in *pecuUaris*. The wings are distinctly brownish, with the color intensified with a streak through the wings traversing the marginal, second submarginal and third discoidal cells. The second recurrent nervure is inserted further from the insertion of the second transverse cubitus than the first recurrent nervure is inserted from the second transverse cubitus. The nervures are very dark brown, as is the stigma, but the costal nervure of the posterior rings is pale brown. The dorsulum is shining, very finely punctured in much the same way as the head. The pleura are almost rugulose. The metathorax is rugulose to rugose on the posterior aspect, and on the dorsal aspect has a triangular area which is acute and extends almost the entire length of this portion of the metathorax. The sculpture within this area is not distinguishable from the sculptures adjoining this area.

The color is black. The head is reddish castaneous, excepting a black band extending from eye to eye across the vertex in the region of the ocelli, which are surrounded by the black.

The scape is largely blackish. The remainder of the antennæ brownish and testaceous.

The prothorax, tubercles, the greater portion of the femora and tibiæ, and the greater portion of the first and second segments of the abdomen are reddish castaneous. The anterior tarsi are testaceous and the middle and posterior tarsi dark brown.

Type.—University of Kansas.

Type locality.—Morton Co., Kansas, 3200 ft.

One male collected by F. H. Snow.

Trypoxylon regularis n. sp.

Related to *apicalis;* the clypeus regular on the anterior margin not at all produced. Metanotum with a rather short deep sulcis on the superior surface.

♀.—*Head* and thorax 4 mm., abdomen missing.

Face along the eye margin with the sculpture obscured by appressed silvery pubescence, otherwise finely granular, with an indistinct median longitudinal line extending from the anterior ocellus to between the insertion of the antennæ where it becomes apparent as a shining raised line. Vertex and cheeks with the sculpture more distinct and shining, with more or less distinguished fine close punctures.

Distance between the posterior ocelli nearly twice as great as that between them and the nearest eye margin. The ocelli forming an equilateral triangle. Joints of the antennæ not well separated, the basal joints especially difficult to distinguish from each other. Third antennal joint distinctly shorter than the fourth, the succeeding joints subequal.

Dorsulum dull granular. Pleura shining, with minute separated punctures. Scutellum more shining than the dorsulum, with fine close punctures. Metanotum shining, finely rugulose, with a longitudinal median rather broad sulcus extending almost the entire length of the sclerite.

Wings transparent, brownish. Nervures and stigma very dark brown. The clypeus obscured in the same way as the lower portion of the face at the eye margin, otherwise the insect is thinly clothed with short whitish pubescence.

Color almost entirely black.

Type.—University of Kansas.

Type locality, Douglas Co., Kansas, 900 ft.

One ♀ taken in June (U. of K. collection, lot 57).

Trypoxylon quintilis n. sp.

Closely related to *clavatum*. The superior face of the metathorax is not appreciably impressed and has longitudinal striæ.

♂.—10 mm.—*Face* below the front with the sculpture hidden by appressed silvery pubescence. Front dullish and rugulose, bisected by a longitudinal median raised line that is most apparent where the silvery pubescence begins and becomes obsolete at the anterior ocellus. The posterior ocelli almost adjoining the eye margin. The space between the latter and the former being approximately one-third or less than one-third as wide as the space between the posterior ocelli. Cheeks shining and apparently impunctate, third segment of the antennæ as long as the two succeeding joints combined.

The sutures of the thorax with a more or less silvery appressed pubescence. With this exception the thorax is rather thinly clothed with rather erect silvery pubescence, which is by far more abundant on the pleura than elsewhere. Dorsulum highly polished and sparsely punctured with rather small, inconspicuous punctures. Pleura also polished, but more distinctly and closely punctured. Scutellum much like the pleura in sculpture. Posterior aspect of the metathorax with a distinct narrow longitudinal median sulcus. Abdomen polished and practically impunctate. Very finely and rather inconspicuously sericeous, with very short pubescence. Wings brownish, nervure and stigma very dark brown, almost entirely black.

Tegulæ brownish. Tarsi brownish, excepting the metatarsus of the posterior legs, which is whitish in the apical half and the second and third tarsal joints of the posterior legs, which are entirely whitish.

The apical tarsal joints, claws and spines black.

Type.—University of Kansas.

One specimen, Douglas Co., Kansas.

One male taken in July, by E. S. Tucker.

Philanthus clarconis n. sp.

Related to *crabroniformis*, from which it can be distinguished by the inequality of the punctuation of the 2nd and 3rd dorsal abdominal segments.

♀.—9 mm.—*Face* below the insertion of the antennæ polished. Clypeus with sparse shallow punctures. The lateral face marks adjoining the clypeus with much closer and finer punctures. The supraclypeal space rather closely indistinctly punctured, with a median longitudinal sulcus that falls short of the superior margin of the clypeus. Front dull, longitudinally striate and roughened, with a short raised line between the anterior ocellus and the supraclypeal yellow mark. Vertex polished and sparsely punctured with rather deep distinct punctures. Cheeks polished and sparsely punctured with smaller punctures than on the vertex. The distance between the posterior ocelli distinctly greater than that between them and the anterior ocellus, and approximately as great as that between them and the nearest eye margin. Third joint of the antennæ approximately as long as the 4th and 5th joints combined. Prothorax polished and sub-emarginate. Dorsulum highly polished and with sparser, coarser punctures than on the vertex. The parapsidal grooves rather indistinct and occupying approximately the middle third of the dorsulum. Scutellum sculptured in much the same way as the dorsulum. Postscutellum shining and mostly impunctate Mesopleura shining, closely punctured with deep, well-defined punctures. Metanotum mostly impunctate along the middle. Closely punctured laterally with a longitudinal median sulcus. Metapleura shining, with fine, sparse, indistinct punctures. The dorsal abdominal segments with rather coarse, sparse punctures. The punctures on the first and second abdominal segments with punctures of two sizes interspersed. The succeeding segments punctured in much the same way, but with the punctures not as coarse, Color black. The shining portion of the face yellow, with the supraclypeal mark rather orange. Scape and flagellum black posteriorly, brownish orange anteriorly. Pedicellum entirely black. Mandibles yellowish, with the tips and margins blackish. Spot on the cheeks, the pronotum, the tubercles, and the subtegular spot, two spots on the scutellum separated by a narrow black line, the postscutellum, spot on either side of the metonotum interrupted broad irregular transverse band on the middle of the first dorsal abdominal segment, a transverse band occupying the greater portion of the second dorsal segment, five emarginations on the anterior margin and with two black spots, transverse band on the third dorso-abdominal segment with four emarginations on the anterior margin, transverse band on the fourth segment occupying the greater portion of the segment and almost all of the 5th segment reddish yellow to orange.

Femora at tips, tibiæ, excepting a black spot on the anterior and middle tibiæ behind, reddish.

Tarsi testaceous. Tegulæ yellow, wings yellowish, nervure and stigma testaceous.

Type locality.—Lawrence, Kansas.

Type locality.—Clark Co., Kansas, 1962 ft.

One female collected in June, by F. H. Snow.

Niteliopsis foxii n. sp.

Forms a distinct group, related to *plenoculoides* by its longer pronotum and by the venation. Superficially like *striatipes*, from which it differs in the submedian cell, which is longer than the median, and in the beak like not gradate median production of the clypeus.

Clypeus in front as in *plenoculoides*. The eyes not so strongly converging to the top. The space between them and the apex is distinctly greater than one-half the space between them at the clypeus. Ocelli forming an equilateral triangle. The distance between the posterior ocelli approximately one and one-half times as great as the distance between the posterior ocelli and the nearest eye margin. There is a slight depression between the lateral ocelli and the tegument adjoining laterally but no furrow reaching forward. Third joint of the antennæ approximately one and one-fourth times as long as the fourth. The fifth joint shorter than the fourth. Dorsulum as in *plenoculoides* appearing rather coarsely granular and with a slight, broad longitudinal median depression. The pronotum sculptured in much the same way as the dorsulum and with a median longitudinal rather deep narrow groove. Metathorax granulated, and in other respects much the same as in *plenoculoides*, but instead of an impressed median longitudinal line on the dorsal aspect there is a raised line, and approximately half way between this raised line and the lateral margin there is a shallow, longitudinal groove parallel to the raised line.

Tarsal claws as in *plenoculoides*, abdomen as in *plenoculoides*, but the last dorsal segment with a rather indistinct pygidium.

Wings as in *plenoculoides*.

Color.—Head and thorax black, excepting the apex of the clypeus, the mandibles and the tarsi which are more or less brownish.

Abdomen reddish castaneous, tibial spurs whitish. Wings brownish. Nervures very dark brown. Covered all over by appressed and more or less erect silvery pubescence, which in no place obscures the sculpture.

Type.—University of Kansas.
Type locality.—Hamilton Co., Kansas, 3350 ft.
One female collected by F. H. Snow.

Ancistroma vegetoides n. sp.

♀.—12 mm.—Very like *vegeta*. Front with a median shallow longitudinal sulcus extending from the anterior ocellus to the slight eminence between the insertion of the antennæ, which is more finely punctured than the front in the middle. Space between the eyes at top a little greater than half the space between the eyes at base of clypeus. Third joint of the antennæ a little longer than the fourth and approximately as long as the fifth.

Dorsum with the punctures so close that they appear indistinct, and nowhere are they at all sparse. Scutellum is slightly impressed in the middle, longitudinally and more coarsely punctured than the dorsulum. Metathorax as in *vegeta*. Legs and abdomen also as in *vegeta*.

Color.—Almost entirely black. The apical joint of tarsi brownish. Marginal cell at apex forming an acute angle. Wings dark fuscous, with black nervures and stigma. The insect appearing bare, but on close inspection is seen to have an exceedingly short pubescence, which gives the abdominal segments a steel-colored cast.

Type.—University of Kansas.
Type locality.—Clark Co., 1962 ft., Kansas.
One female collected in June, by F. H. Snow.

Ancistromma zerbeii.

In color nearly like *chilopsidus*, from which it differs decidedly in structure and sculpture.

♀.—12 mm.—Anterior margin of the clypeus almost regularly rounded. Neither emarginate nor dentate. Clypeus with distinct deep punctures that are one to three puncture widths apart. Immediately above the clypeus between the insertion of the antennæ is a roughened triangular area, and above this is an inverted V-shaped eminence, which is polished, and with rounded sides. Between the apex of the eminence, which is toward the anterior ocellus and the anterior ocellus, there is a distinct groove separating the front into two halves. On either side of this groove the front is triangularly elevated and covered with well-separated punctures, which are larger than the punctures on the front nearer the eye margins. Vertex with a V-shaped depression extending from where the posterior ocelli could be imagined to be if present and uniting with a median groove at the apex, thus forming a Y.

The space between the eyes on the vertex approximately one and one-half the distance between the eyes at the base or the clypeus. The third joint of the antennæ a little longer than the fourth and approximately as long as the fifth. Cheeks granular or appearing minutely closely punctured.

Prothorax minutely, closely punctured, the dorsulum finely closely punctured, but the punctures coarser than on the pronotum. Scutellum and postscutellum more closely punctured than the dorsulum. The scutellum more shining than the dorsulum, the postscutellum dull and apparently impunctate.

Metathorax very delicately sculptured with minute striæ. Pygidial area with distinct lateral margins nearly twice as long as wide at base and with sparse distinct punctures.

Color.—Testaceo-castaneous. Head black, excepting the greater portion of the clypeus, mandibles and antennæ, which are castaneous. Mandibles at base and apex, clypeus at base, blackish. Apical two-thirds of flagellum brownish, sutures of the thorax blackish. Sternum black.

The thorax and abdomen more castaneous than testaceous, while the legs are the reverse. Wings yellowish, with the nervures testaceous.

Type.—University of Kansas.
Type locality.—Clark Co., Kansas, 1962 ft.
One female, taken in June, by F. H. Snow.

Ancistromma tachysphecoides n. sp.

Belongs near *chilopsidis*, from which it is very different.

♂.—8 mm.—Anterior margin of the clypeus rounded, entire. Front, along the middle, with distinct, deep, separated punctures and shining. Along the eye margins the front is more closely punctured and rather opaque. The occiput punctured in much the same way as the middle of the front. From between the insertion of the antennæ to the anterior ocellus there is a shallow, rather indistinct channel. Posterior to the ocellar field there is a "V"-shaped groove. The distance between the eyes across the vertex is about three-fourths (¾) as great as the distance between the eyes at the base of the clypeus. The third antennal joint is as long as the fourth and the fourth as long as the fifth. The scape is approximately as long as the third and fourth joints of the antennæ combined.

The sculpture of the dorsulum is approximately as in *vegeta*. Legs spinose as in *vegeta*.

The abdomen is tessellate, practically impunctate. The last dorsal segment, however, with rather distinct shallow punctures. The terminal ventral segment truncate. The head and thorax black, tegulæ and nervures and stigma of wing testaceous, otherwise the wing is yellowish transparent, with a brownish tint. The legs are a brownish testaceous, excepting the coxæ, trochanters and the greater portion of the middle femora, which are black or blackish. The posterior femora brownish at base. Abdomen concolorous with the posterior tibiæ.

Type.—University of Kansas.

Type locality.—Clark Co., Kansas, 1962 ft.

One male collected in May by F. H. Snow.

Ancistromma pænerugosa n. sp.

Superficially like the black form of *rugosa,* but differs in sculpture, notably in the more shining mesonotum and in the less distinct punctures on the scutellum.

♂.—8 mm.—Anterior margin of the clypeus rounded and entire. Front and vertex much the same as in *tachysphecoides.*

The depressions or furrows, however, distinct. Space between the eyes at top approximately three-fourths the distance between the eyes at base of clypeus. First joint of the antennæ as long as the second and third joints combined. The second joint two-thirds the length of the third, and the third approximately as long as the fourth, and the fourth a little longer than the fifth. Dorsulum shining and compactly punctured. Scutellum with a slight median longitudinal depression. Metathorax above granular and rugulose. To some extent transversely striate, with at least three longitudinal, rather indistinct ridges, that are parallel and close together. The dorsal aspect of the metathorax slightly overhanging the posterior aspect, which has a median longitudinal sulcus and is granular. Abdomen compactly punctured with small shallow punctures. Entirely black, with the following exceptions: the labium testaceous, tarsi brownish, costal nervure brownish testaceous, stigma very dark brown, the nervures dark brown testaceous, otherwise the wing is transparent, with a brownish blackish tint.

Type.—University of Kansas.

Type locality.—Clark Co., Kansas, 1962 ft.

One male collected in June, by F. H. Snow.

Tachysphex crassiformis n. sp.

♀.—7 mm.—Distinguished from *antennatus,* its nearest ally, chiefly by the more robust form and distinctly margined pygidial area. Anterior margin of the clypeus as in *antennatus.* Front finely granulated, except near the anterior ocellus, where it is sparsely punctured. Vertex finely and closely punctured. Space between the eyes across the vertex approximately one-third the distance between the eyes at base of clypeus. A deep rather arcuate transverse sulcus between the eyes on the vertex.

Connected with the ocellar space by a shallow rather narrow groove. First joint of the antennæ nearly as long as the second, third and fourth joints combined. The second joint half the length of the third, and third joint approximately as long as the fourth.

Dorsulum finely and closely punctured along the middle. More polished and with the punctures sparse. Scutellum uniformly, rather closely punctured. The metathorax above finely granulated, the metapleura distinctly striated. The posterior aspect of the metathorax has the metanotum somewhat overhanging in the form of a ridge. The posterior aspect of the metanotum is more closely striated than the metapleura, and on the basal half has a deep oval depression Pygidial area a little more than twice as long as wide at base and with sparse small, shallow punctures. Head and thorax black. Mandibles and tarsi more or less brownish. Wings with a faint brownish tinge, nervures brown, stigma brownish testaceous. Abdomen testaceo-castaneous, more or less covered with silvery, appressed pubescence, which is more conspicuous on the lower half of the face, on the pleura, margins of the thorax, metathorax and along the apical margins of the abdominal segments and laterally when held in certain lights.

Type.—University of Kansas.

Type locality.—Hamilton Co., 3350 ft., Kansas.

One female, collected by F. H. Snow.

Tachysphex clarconis n. sp.

Related to *terminatus*.

♀.—7 mm.—Anterior margin of clypeus as in *terminatus*. Front finely granulated, the sculpture practically obscured by the rather dense appressed silvery pubescence. The occiput between the eyes somewhat depressed, making a shallow emargination. Space between the eyes at top a little more than half the distance between the eyes at the bottom. Third joint of the antennæ approximately three-fourths the length of the fourth joint. The fourth joint apparently a little longer than the fifth, the fifth and succeeding joints subequal. Dorsulum shining, with small distinct almost adjoining punctures. Pygidial area less distinctly punctured than the dorsulum and with the punctures well separated.

Color.—Black. Abdomen reddish, with the venter brownish.

Type.—University of Kansas.

Type locality.—Clark Co., Kansas, 1962 ft.

One female collected in May, by F. H. Snow.

Tachysphex intermedius n. sp.

Related to *punctifrons* and *æthiops*.

♂.—8.5 mm.—Anterior margins of the clypeus rounded, having no large tooth laterally. Front dullish, very finely roughened and appearing punctate. A shallow groove extending the greater distance between the insertion of the antennæ and the anterior ocellus along the middle line. The distance between the eyes above approximately as great as one-half the distance between the eyes below. Third joint of the antennæ a little shorter than the fourth, the fourth and succeeding joints subequal. Dorsulum shining and rather indistinctly punctured, the punctures well separated. The anterior third along the middle line there is a longitudinal elevation. Scutellum shining and punctured in much the same way as the dorsulum. Metathorax dullish and apparently impunctate, though appearing finely roughened. Abdomen shining, indistinctly, rather closely punctured. The head, thorax and abdomen are more or less covered with thin, erect, whitish pubescence. The erect pubescence of the abdomen being confined to the venter and basal dorsal segment. The legs and the abdomen are conspicuously more or less covered with appressed silvery to silvery, with a gold tint pubescence.

Color.—Almost entirely black. Tibial spurs brownish testaceous. The tarsæ brownish.

Type.—University of Kansas.

Type locality.—Douglas Co., Kansas, 900 ft.

One male, collected by F. H. Snow.

Diodontus brunneicornis n. sp.

Related to *rugosis*, from which it is easily distinguished by the dull dorsulum and the pale brownish antennæ.

♂.—35 mm.—Clypeus anteriorly very slightly emarginate. Front subopaque appearing granular and impunctate. The ocelli rather equidistant. The distance between the posterior ocelli approximately as great as that between them and the nearest eye margin. The vertex and occiput with apparently the same sculpture as the front. The antennæ rather robust, and the third joint a little shorter than the fourth, the fourth and succeeding joints subequal. Between the sixth and the terminal joint the under side of the antennæ appears reddish.

Dorsulum subopaque, with minute, almost adjoining punctures. The pleura indistinctly punctured and appearing roughened. The mesopleura rather rugulose. Metanotum distinctly rugulose, with two indistinct channels down the middle. The posterior face of the metathorax also rugulose, but not spinose. Covered with a very short, more or less silvery pubescence. The mandibles yellowish, excepting at tips, where they are brownish translucent. Scape and pedicellum black or blackish.

Femora at tip, tubercles, tibiæ and tarsi yellow. Tegulæ testaceous, as are the spurs. The wings with a faint brownish tint, stigma and nervures more or less dark brown. In other respects this insect is black.

Type.—University of Kansas.

Type locality.—Sedgwick Co., Kansas, 1300 ft.

One male taken in Sept., by E. S. Tucker, U. of K., lot 361.

Passalæcus equalis n. sp.

Antennæ slender, as in *annulatus*, but the third joint as long as the fourth.

♀.—3.5 mm.—Frontal impression indistinct. The distance between the posterior ocelli approximately equal to the distance between them and the nearest eye margin. Apical joint of the antennæ hardly longer than the preceding joint. Dorsulum shining, very finely closely punctured.

Scutellum and postscutellum more shining and more distinctly punctured than the dorsulum. Metathorax rounded and rugulose. Abdomen polished, pubescence very short and nowhere conspicuous. Mandibles, except the tip, where they are brownish, scape, sutures of the antennæ and tubercles yellow. Legs, excepting the coxæ, which are black, testaceous and partly brownish. Wings transparent, tinted with brown, and stigma and nervures are very dark brown.

Type.—University of Kansas.

Type locality.—Douglas Co., Kansas.

One female collected by E. S. Tucker.

Crabro clarconis n. sp.

Related to *hilaris*, from which it differs in the sculpture of the thorax.

♀.—9.5 mm.—Head dull, finely roughened. Third joint of the antennæ a little shorter than the two succeeding joints combined. Pronotum bluntly dentate laterally. Dorsulum with close, rather indistinct punctures on a shining surface. Pleura highly polished, the mesopleura with fine, rather sparse punctures, the metapleura partly impunctate, and partly with shallow indistinct punctures. The dorsal aspect of the metathorax is dull and roughened, but has a median longitudinal channel traversing it which is broader at base than at apex and a little more than twice as long as wide at base and shining. The posterior aspect of the metathorax has a rather irregular median longitudinal sulcus and is somewhat reticulate and shining.

The posterior margin of the anterior tibiæ with three rather slender spines, the posterior margin of the middle tibiæ with seven stouter spines, the posterior margin of the posterior tibiæ with six or seven stout spines.

First abdominal segment polished, the succeeding segments shining, but with rather a subtle sculpture. Pygidium margined laterally, closely or coarsely punctured, or pitted with the sculpture of the apical half at least, obscured or almost obscured by stiff appressed golden hairs or bristles.

The pygidium about one and a half times as long as broad at base.

Color.—Black. Mandibles, excepting the tips, which are blackish, the clypeus, excepting the brownish apical margin, the scape, pedicellum anteriorly, the pronotum, excepting a median longitudinal black line, the tubercles, the episternum. mesopleuralis, the anterior margin of the tegulæ, the extreme base of the wings, the scutellum and a dot on each side anteriorly, and a line on each side of the middle of the postscutellum, the apical third or more of the anterior and middle femora, the anterior and middle tibiæ and metatarsi, the anterior aspect of the posterior femora, a transverse undulating band on the first dorsal abdominal segment, an elongate spot on ventral abdominal segments 2, 3 and 4, an interrupted band on the second and third dorsal abdominal segments, an apical band on the fourth and fifth dorsal abdominal segments, yellow.

The greater part of the outer and posterior aspects of the posterior femora and the tarsi brownish. The anterior and middle tibia each with a black spot on the internal aspect.

Type.—University of Kansas.

Type locality.—Clark Co., Kansas, 1962 ft.

One female collected in June by F. H. Snow.

Notoglossa pænemarginatus n. sp.

Closely related to *emarginatus,* from which it differs in the narrow more slender spine, also resembles *dilutus.*

Scutellum and postscutellum with a median longitudinal carina. The spine of postscutellum is not much longer than the distance between the tips of the prongs, which are slightly divergent, extending outward, backward and somewhat downward, but not extending far beyond the line running parallel to the spine at its base. The squamæ nearly as large as the spine and with a very short spine on the external margin directed backward and slightly inward.

Color.—Black. Mandibles, excepting the apical half, which is brownish, the outer third of the pronotum, the tubercles, spot at apex of anterior and middle femora, the outer aspect of the anterior tibiæ, spot at base of middle and posterior tibiæ and bands at the margin of the outer third of the first and second dorsal abdominal segments yellow, scape at apex, apical two-thirds of the flagellum, anterior aspect of the anterior tibiæ and tarsi more or less brown. The middle and posterior tibiæ very dark brown. The tegulæ and bases of the wings are brownish testaceous. The squamæ are yellowish testaceous. The penultimate dorsal abdominal segment is brownish apically and the apical abdominal segment is reddish brown.

Type.—University of Kansas.

Type locality.—Clark Co., Kansas, 1962 ft.

One female taken in June by F. H. Snow.

Notoglossa calligaster n. sp.

Related to *abdominalis.*

♀.—5 mm.—Dorsulum closely, rather finely punctured. Segments of the male abdomen 4-6 inclusive with subequal, cylindrical, and rather slender inconspicuous spines. Head closely distinctly punctured and shining. Thorax, excepting the metathorax, punctured and shining in much the same way as the head. The metathorax finely roughened and subopaque. Abdomen more finely and closely punctured than the head. The spine of the postscutellum is narrowly emarginate, with the prongs directed upward, backward and inward. The squamæ are much as in *emarginatus,* but the spines thereof are larger and more prominent. Pubescence of face practically obscuring the sculpture. The appressed pubescence of the mesopleura silvery and almost obscuring the sculpture.

Color.—Black. Mandibles, except at tips, where they are brownish, anterior and middle tibiæ, at least anteriorly, the anterior tarsi, tubercles, spot on either side of the pronotum yellowish.

The squamæ and spine whitish testaceous. The anterior and middle tibiæ posteriorly more or less brown. The posterior tibiæ, the middle and posterior tarsi dark brown. The abdomen is mostly brownish, the third and fourth dorsal abdominal segments are mostly blackish, and the first dorsal abdominal segment is testaceous, tinted with brownish.

Type.—University of Kansas.

Type locality.—Morton Co., Kansas, 3200 ft.

One female taken by F. H. Snow.

In structure and sculpture a male paratype from Hamilton Co., Kansas, is essentially the same as the type, but in this specimen the maculations on the pronotum are more prominent and the abdomen is mostly blackish. The first and sixth and seventh abdominal segments are brownish-testaceous to brownish. Along the margins of the first and second dorsal abdominal segments there is a rather distinct band of yellow. ♂.—4 mm.

Notoglossa tænigaster n. sp.

May be the female of *cockerelli*, but differs as follows: Front without tubercle, mesonotum anteriorly not carinate. Abdominal bands entire, tibiæ without a whitish stripe externally.

♀.—8 mm.—*Head*, thorax and abdomen sculptured in much the same way as in *calligaster*. Each squama has a very distinct lateral spine, which is directed backward and slightly inward and is almost perpendicular to the posterior margin of the squama. The spine of the postscutellum is very narrowly emarginate, nearly twice as long as broad at apex and with the spines or processes thereof hardly departing from an imaginary line prolonged from the sides of the spine. It must be remarked, however, that in this specimen the prongs of the postscutellar spine are not equally disposed, which would indicate that the spine is abnormal. The mandibles are brownish, excepting the apex, which is blackish, the scape brownish at apex. Pedicellum and flagellum mostly brownish, with yellowish brown beneath. A short line on either side of the pronotum, tubercles, spotted base of anterior tibiæ, spotted apex of anterior femora, spot on either side of the scutellum, a line on the outer aspect of the apical two-thirds of the middle femora, a line on the base of the posterior tibiæ and transverse band at apex, dorsal abdominal segments 1–4 inclusive. Luteous.

The anterior tibiæ are brownish testaceous, the anterior tarsæ brownish, excepting the pulvilli, which are black. The squamæ, are partly whitish, testaceous and partly luteus. The spine of the postscutellum brownish. The middle and posterior tibiæ and tarsi and spines are very dark brown. Ventrally the abdomen is black, except the posterior half of the fourth segment, the fifth and sixth segment, which are brownish testaceous, as are also the fifth and sixth dorsal abdominal segments.

Type.—University of Kansas.

Type locality.—Morton Co., Kansas, 3200.

One female taken in June, 1902, by F. H. Snow.

Oxybelus exclamans n. sp.

Related to *packardii*. Differs from all the North American species of *Oxybelus* in the mesonotum, which is so closely and confluently punctured as to appear rugose.

♀.—6 mm.—*Face*, with the sculpture obscured by an appressed silvery pubescence. The clypeus with a median longitudinal polished keel which is prolonged so as to make the anterior margin of the clypeus appear beaked. The vertex and cheeks are closely confluently punctured, but shining, and the latter covered with a rather dense appressed silvery pubescence. The dorsulum has a rather abundant appressed silvery pubescence, which does not, however, obscure the sculpture. The scutellum is sculptured and ornamented in much the same way as the dorsulum. The squamæ are prolonged posteriorly into a rather blunt angle, which is directed backward and inward. The spine of the postscutellum has parallel sides, and the width of the apical truncation is a little less than one-third the length of the spine. The mesopleura, excepting for a large space on the anterior half, which is polished and very sparsely punctured, are punctured in much the same way as the scutellum, and also with appressed silvery pubescence. The dorsum of the metathorax has the sculpture obscured by appressed silvery pubescence. The metapleura shining, mostly granular and partly smooth. The posterior aspect of the metathorax is granular and has a median rather tear-shaped polished sulcus. The abdomen is shining and rather closely, distinctly punctured. On the first dorsal abdominal segment there is a median, longitudinal shallow sulcus. The first dorsal abdominal segment is rather conspicuously clothed with appressed silvery pubescence, which forms rather conspicuous bands on the margins of the second, third and fourth dorsal abdominal segments. The fifth dorsal abdominal segment is rather inconspicuously pubescent. The pygidial area has appressed golden hairs or bristles

Color.—Black. The flagellum brownish orange, the pedicellum and apex of scape brownish. Mandibles mostly blackish, partly castaneous. Pronotum with a yellow mark on either side. Tubercles, the anterior tibiæ and metatarsi on the inner aspect, the middle and posterior aspect, and the posterior margin of the first dorsal abdominal segment with a mark on either side more or less yellow. The anterior tarsi mostly yellowish, the anterior tibiæ, the middle and posterior tarsi brownish, middle tibiæ brownish. The apical margins of the second, third and fourth dorsal abdominal segments brownish yellow. The fourth, fifth and sixth abdominal segments brownish to castaneous. The squamæ yellowish, and yellowish testaceous, the apical half of the spine of the postscutellum translucent yellowish.

Type.—University of Kansas.
Type locality.—Morton Co., 3200 ft., Kansas.
One female collected by F. H. Snow.

TEXAS.

ICHNEUMONIDÆ.

Idecthis pænerivalis n. sp.

In structure very like *Limnerium rivalis* Cress.; it is readily distinguished from that species by the almost entirely black abdomen.

♀.—6 mm.—*Head.*—As in *Limnerium lawrencei*, excepting the antennæ, which could not be compared because they had been lost through breakage.

Thorax with the same characters, with one exception, as those in italics in the description of *L. lawrencei*, otherwise as follows: petiole of the areolet a little longer than the shortest side of the areolet; areola confluent with the petiolarea. pentagonal in outline a little shorter than wide, the upper sides of the pentagon nearly as long as the areola is wide at its junction with the petiolarea, the sculpture of the areola is granular and shining, with a few slight wrinkles, the basal area forming almost an equilateral triangle, greatest width of the petiolarea nearly half the length of the same, its sides broken or angled in or near the middle, the sculpture of the petiolarea more distinctly granular and dull than that of the areola, the surface depressed, forming a very shallow channel, external and external median areas nearly smooth, dull and distinctly separated by an oblique raised line, internal and angular areas well defined, shining and rugose, the latter area nearly one-half the size of the former and almost forming an equilateral triangle; legs, including the coxæ, almost entirely ferruginous, trochanters of the anterior and middle legs and the distal coxæ of the posterior legs yellow, the proximal trochanter of posterior legs testaceous, with a blackish tint, tarsi and knees of anterior and middle legs and extreme base of posterior tibiæ more or less yellowish, first and second tarsal joints with a broad apical brownish band, the succeeding joints of the tarsi and the claws almost entirely brown, posterior tibiæ tinted with brown and with the apex externally dark brown, the basal three-fourths of metatarsus, basal third of the next succeeding joint and extreme apex of the third and fourth joints of the tarsi of the posterior legs sort of a brown-tinted cream color.

Abdomen.—Black, basal half of venter yellowish, only the second and third dorsal segments with ferruginous, the ferruginous being confined chiefly to the sides, the ferruginous of the sides of the second segment, however, being connected on the dorsum of the segment by a band. Sheaths black, the ovipositor black, except at apex, where it is brown and nearly as long as the abdomen.

Type.—University of Kansas.

Type locality.—Galveston, Texas.

One ♀ taken in May at Galveston, Texas.

♂.—5 mm.—Very like the female, apparently the only important differences are as follows: areolet with the petiole about as long as the shortest side, like in the ♀, not equilateral and oblique in position; areolet of the metathorax separated from the petiolarea by a distinct ridge, the angular area small and lunate Antennæ twenty-eight jointed, first joint of the flagellum as long as the scape, the antennæ entirely black.

One specimen with the same data as the ♀.

Type.—University of Kansas.

Campoplex expertus Cress.

One ♀ 9 mm. long, taken in May, at Galveston, Texas, by F. H. Snow.

Amorphota confluens n. sp.

Related to *Limnerium? hostilis*, *distinctus* and *affinis*, but structurally distinct from each.

♀ —7 mm.—Head.—*With the anterior aspect finely sculptured, dull; clypeus rather shining and distinctly closely punctured; cheeks shining, minutely sculptured and about half as wide as on eye, the eye about as wide as the space between the eyes at base of clypeus; malar space nearly as high as the pedicel is long; ocelli forming a triangle, the anterior ocellus about as far from the posterior ocellus as a posterior ocellus is from the nearest eye margin, the space between the posterior ocelli about one and one-half times as great as distance between the lateral and anterior ocelli;* antennæ twenty-nine jointed, *the first joint of the flagellum about as long as the scape and pedicellum together; almost entirely black, only the scape, pedicellum and mandibles partly pale,* the former two chiefly yellowish and brown, the latter yellow, brown at apex; *pubescence silvery, densest on the face, where in certain lights it rather obscures the sculpture*

Thorax —Dorsulum sculptured much like the face, not so conspicuously clothed with pubescence. the pubescence very short and somewhat tinted with yellowish; pleura chiefly with rather distinct adjoining punctures on a quite shining surface; basal area forming a trapezoid about twice as wide at base as at apex, the basal transverse carina being about one-half the length of this area, areola confluent with the petiolarea, from the carina separating the external from the external median area to the basal transverse carina, the areola is almost an equilateral triangle, region of the petiolarea impressed and transversely rugulose, petiolarea partly confluent with the internal area, the internal area wrinkled, shining and separated from the angular area, which is conspicuous and almost a triangle, external median area more coarsely sculptured than the external area, from which it is separated by downward arched carina, spiracular area and middle pleural areas confluent, the spiracle almost adjoining the pleural carina and united therewith by a broad elevation of the tegument, excepting its appendages, the thorax is black; wings hyaline, the nervures brown, rather brownish testaceous, the stigma testaceous, tinted with brown, wing nervures at base of wing and tegulæ yellow, areolet a trapezium, petiolate or subpetiolate, the petiole almost wanting, not more than half the length of the shortest side of the areolet, anterior and middle coxæ yellow and brown, posterior coxæ black, with reddish on the apical half, all trochanters yellow, except the proximal pair of posterior legs, which are brown, all femora ferruginous, anterior and middle tibiæ testaceo-ferruginous beneath, yellowish above, posterior tibiæ brown above, ferruginous beneath, yellowish above, posterior tibiæ brown above, ferruginous beneath, tarsi more or less brown, pale at base, tibial spurs testaceous.

Abdomen.—Ferruginous, petiole black, as is the second segment, excepting an illdefined subapical band of ferruginous, greater part of basal half of the third segment black, fourth segment partly blackish at base, venter chiefly yellow; ovipositor enveloped by the black sheaths, the protruding portion about as long as the petiole.

Type.—University of Kansas.

Type locality.—Galveston, Texas.

One specimen collected in May (F. H. Snow).

Amorphota confluens mutation *a.*

Like *confluens*, this is related to *Limnerium ? hostilis, distinctus* and *affinis*, but structurally distinct from each.

♀.—5 mm.—*Head.*—As in *confluens* to the extent of the italicized characters in the description of that species; antennæ twenty-six jointed, the pedicellum brownish in part, the scape yellowish testaceous and brown; mandibles yellow, reddish brown at apex, palpi yellowish. In other respects essentially like *confluens*, dorsum of abdominal segments beyond the third stained with brownish.

One specimen, with the same data as *A. confluens.*

Amorphota confluens mutation *b.*

♀.—A little longer than mutation *a*, but colored almost the same: areolet distinctly petiolate, the petiole about as long as the shortest side of the areolet; antennæ twenty-seven jointed.

One specimen, same data as type.

♂.—Differs from the ♀ as follows: eyes narrower, about equal to three-fourths the distance between the eyes at base of clypeus, the cheeks about two-thirds as wide as the eye; antennæ thirty-one jointed, proximal trochanter of posterior legs about entirely black.

One specimen, same data as type.

Amorphota confluens mutation *c.*

♀.—Differs from mutation *b* in having the areolet just sessile, the areolet retaining its trapezium shape as in the type.

One specimen, same data as type.

♂.—Specimen a degree removed from sessile, *i. e.* slighly petiolate (antennæ broken). Anomalous in having an ovoid opening in each discocubital cell.

One specimen, same data as type.

Amorphota galvestonensis n. sp.

Related to *basilaris*, but very distinct in size, structure and color.

♀.—4 mm.—*Head.*—As usual, with the anterior aspect dull, the posterior aspect more or less shining, minutely sculptured; face, clypeus and malar space minutely granular, inconspicuously clothed with silvery pubescence, appearing bare; cheeks about half the width of the eye, the latter a little less than two-thirds as wide as the space between the eyes at base of clypeus; ocelli arranged about as in *confluens;* malar space about as high as the scape is long, antennæ twenty-six jointed, scape and pedicellum together as long or a little shorter than the second joint of the flagellum, distinctly shorter than the first joint; black, excepting the appendages; antennæ very dark brown, with the scape, pedicellum and first joint of the flagellum more or less pale brown, mandibles yellow, reddish brown at apex.

Thorax with the usual similarity to the head in sculpture; basal area forming an equilateral triangle or very nearly, areola confluent with the petiolarea and transversely rugulose, if complete, the areola would be about twice as long as wide, and except for the basal apex it is spatulate, external area granular, shining and separated from the external median area, which is rugulose, dullish by a more or less distinct raised line, angular area apparently confluent with the rather coarsely wrinkled internal area, spiracular and middle pleural areas confluent, the spiracle joined to the pleural carina by an elevation of the tegument; nervures dark brown, stigma brownish testaceous, areolet a trapezium, just sessile: anterior coxæ reddish brown and infuscated, middle and posterior coxæ almost entirely black, trochanters almost entirely yellow, anterior and middle femora testaceo-ferruginous, posterior femora ferruginous, tibiæ and tarsi of anterior and middle legs yellowish testaceous, partly tinted with brown, the apical tarsal joint and claws of all legs brown; posterior femora ferruginous, posterior tibiæ brownish testaceous beneath, above they are brown on basal fourth and apical third between the tegument is sort of a brownish yellow, most of the tarsi of posterior legs brown, pale brown at base.

Abdomen.—Ferruginous, first segment and second segment black, except an apical band united with a partial lateral band which are ferruginous, third, fourth and fifth dorsal segments with a large discal blackish spot on basal two-thirds; ovipositor reddish brown, covered partly by the black sheaths and protruded for a distance that is less than the apical width of the abdomen.

Type.—University of Kansas.

Type locality.—Galveston, Texas.

One specimen taken in May by F. H. Snow.

Amorphota ferruginosa n. sp.

Related to *Limnerium ? rivalis* Cress., but can readily be distinguished by the channeled metathorax.

♀.—5.5 mm.—*Head* in general form nearly as in *galvestonensis*, but differs in the following details: malar space distinctly shorter than the length of the scape about as high as the mandible is wide near the apex, *i. e.* where the teeth spring from the mandibles; antennæ twenty-eight jointed, flagellum brown, with the first joint about as long as the scape and pedicellum together, the latter two being yellow beneath, mandibles yellowish brown at apex, palpi yellowish testaceous.

Thorax.—With the same relation to the head, in sculpture, as usual; basal area about twice as broad at base as at apex, and about twice as long as wide at apex, areola nearly smooth, confluent with the transversely wrinkled petiolarea, if complete the areola would be hexagonal with the sides, excepting the basal transverse carina, nearly subequal, external and external median areas nearly smooth and separated by a very distinct straight carina, internal area with a few coarse wrinkles, the angular area lunate and not conspicuous, spiracular and middle pleural areas almost completely confluent, the spiracle united with the pleural carina by a carina; anterior and middle legs almost entirely testaceous, apical tarsal joints and claws of all the legs brown, posterior coxæ ferruginous, the trochanters, femora and tibiæ of posterior legs testaceo-ferruginous, the tarsi of posterior legs testaceous.

Abdomen.—Ferruginous, petiole black, except an apical ferruginous band, basal two-thirds of second segment blackish to a great extent, and a basal band on the third segment black; ovipositor prutruded for a distance equal to two-thirds the length of the abdomen.

Type.—University of Kansas.

Type locality.—Galveston, Texas.

One specimen taken in May, by F. H. Snow.

Porizon facilis Cress.

One ♀ with a nearly equilateral pentangular areola, and four ♂ showing slight variation in the form of the areola and in the strength of the carinæ bounding the same.

Taken in Galveston, Texas, in May, by F. H. Snow.

Trogomorpha trogiformis (Cress.).

One ♂ taken in May at Galveston, Texas, by F. H. Snow.

CHALCIDOIDEA.

EULOPHIDÆ.

Tetrastichus.

PERILAMPIDÆ.

Perilampus platygaster Say.

Two specimens Galveston, May (F. H. Snow).

EURYTOMIDÆ.

Eurytoma.

CHALCIDIDÆ.

Spilochalcis delira Cress.

One specimen, Galveston, May (F. H. Snow).

Spilochalcis torvina Cress.

Two specimens, Galveston, May (F. H. Snow).

TORYMIDÆ.

Syntomaspis.

CYNIPOIDEA.

FIGITIDÆ.

Eucoila impatiens Say.

One specimen, Galveston, May (F. H. Snow).

Anacharis melanoneura Ashm.

Three ♂ Galveston, May (F. H. Snow).

PROCTOTRYPOIDEA.

SCELIONIDÆ.

Scelio hyalinipennis Ashm.

Male, Galveston, Texas, May (F. H. Snow).

Scelio striaticollis Brues, sp. nov.

"*Female.*—Length 3-4 mm.—Black, except the legs (exclusive of the coxæ) and antennal scape which are rufous; clothed with sparse glistening pubescence. Head nearly three times as wide as thick antero-posteriorly; rather shining above; almost smooth on the vertex; front longitudinally rugose, with a few large punctures. Face with oblique striæ on each side which meet above on the median line and fade out below near the base of the antennæ. Antennal scape stout, rufous, flagellum dark brown. Pedicel nearly twice as long as the first flagellar joint; second flagellar joint quadrate, the following transverse; club stout, as usual. Cheeks smooth, mandibles brownish basally. Mesonotum and scutellum longitudinally striate, smoother laterally, the parapsidal furrows well marked, except at the extreme front margin. Metanotum finely sculptured, slightly longitudinally rugose, its lateral angles not evident. Petiole twice as wide as long; third segment one and one-half times as long as the second. Abdomen above finely striate; more coarsely so on the petiole. Legs rufous, coxæ brownish black. Wings with a brownish cast, the submarginal nervure scarcely discernible; stigma very faint, without any indication of a stigmal vein"

"Two specimens; Galveston, Texas, May, 1904, F. H. Snow. No. 1323."

"This species comes closest to *S. œdipodæ* Ashm., from which it is distinguished by the striated sculpture of the head and thorax."

VESPOIDEA.

MUTILLIDÆ.

Mutilla creusa Cress.

Female, Galveston, May (F. H. Snow).

Mutilla oajaca Blake.

Male, Galveston, May (F. H. Snow).

Mutilla promethea Blake.

Male, Galveston, May (F. H. Snow).

Mutilla dubitata Sm.

Female, Galveston, May (F. H. Snow).

SCOLIIDÆ.

Elis quadriguttata Fabr.

Female, Galveston, May (F. H. Snow).

MYZINIDÆ.

Plesia sexcincta Fabr.

Two ♀, ♂, Galveston, May (F. H. Snow).

EUMENIDÆ.

Ancistrocerus fulvipes Sauss.
Galveston, May (F. H. Snow).

Odynerus hidalgi Sauss.
Galveston, May (F. H. Snow).

VESPIDÆ.

Polistes bellicosus Cress.
Galveston, May (F. H. Snow).

CEROPALIDÆ.

Cryptocheilus pompilius Cress
Galveston, May (F. H. Snow).

Anoplius (Sophropompilus ?) philadelphicus Lep.
Galveston, May (F. H. Snow).

Anoplius (Sophropompilus ?) æthiops Cress.
Galveston, May (F. H. Snow).

Anoplius (Entypus) marginatus Say.
Galveston, May (F. H. Snow).

Anoplius (Pompilinus) apiculatus Sm.
Galveston, May (F. H. Snow).

Anoplius (Arachnoproctonus) ferrugineus Say.
Galveston, May (F. H. Snow).

Anoplius cylindricus Cress.
Galveston, May (F. H. Snow).

SPHECOIDEA.

NYSSONIDÆ.

Alyson melleus Say.
Galveston, May (F. H. Snow).

PHILANTHIDÆ.

Cerceris venator Cress.
Galveston, May (F. H. Snow).

LARRIDÆ.

Larra analis Fabr.
Galveston, May (F. H. Snow).

BEMBECIDÆ.

Bembix cinerea Hdl.
Galveston, May (F. H. Snow).

Stictia carolina Fabr.
Galveston, May (F. H. Snow).

PEMPHREDONIDÆ.

Neofoxia suffusa Fox.
Galveston, May (F. H. Snow).

CRABRONIDÆ.

Crabro scaber Lep. and Brulle.
Galveston, May (F. H. Snow).

Crabro texanus Cress.
Galveston, May (F. H. Snow).

OXYBELIDÆ.

Notoglossa emarginata Say.
Galveston, May (F. H. Snow).

APOIDEA.

STELIDÆ.

Cœlioxys slossonæ Vier.
Galveston, May (F. H. Snow).

XYLOCOPIDÆ.

Xylocopa purpurea Cress.
Galveston, May (F. H. Snow).

Xylocopa virginica Drury.
Galveston, May (F. H. Snow).

BOMBIDÆ.

Bombias scutellaris Cress.
Galveston, May (F. H. Snow).

ARIZONA.

ICHNEUMONIDÆ.

Nototrachys reticulatus Cress.

One ♂ from Oak Creek Canyon, Arizona, 6000 ft., taken in July, by F. H. Snow.

Nototrachys ejuncidus Say.

One ♀ from Oak Creek Canyon, Arizona, 6000 ft., taken in August, by F. H. Snow.

Thyreodon morio Fabr. race? **trasitionalis** n. race.

♀.—Differs from the typical eastern form in having the basal third of the marginal cell, the greater portion of the disco-cubital cell in the anterior wings and the basal third of the marginal cell of the posterior wings yellow transparent, the anterior tibiæ and the first four tarsal joints brown

Type.—University of Kansas.

Type locality.—Oak Creek Canon, Arizona, 6000 ft.

One female collected in July, by F. H. Snow.

Theronia fulvescens mellipennis Vier.

One ♂, 15 mm. long, from Oak Creek Canon, Arizona, 6000 ft., taken in August, by F. H. Snow.

Cryptus consobrinus n. sp.

Related to *C. americanus*, from which it is readily distinguished by the uniformly black legs and dark smoky wings.

♀.—13 mm.—Essentially as in *americanus*, differing chiefly as follows: areolet nearly a circle; metanotum with the carinæ very indistinctly defined.

Type.—University of Kansas.

Type locality.—Oak Creek Canon, Arizona, 6000 ft.

One female collected in July, by F. H. Snow.

Ichneumon (Eurylabus) arizonensis Vier.

One ♀ from Oak Creek Canon, Arizona, 6000 ft. (type locality), taken in August by F. H. Snow.

Amblyteles nubivagus Cress.

One ♂ taken at the base of Humphrie's Peak, Arizona, 9500 ft. (F. H. Snow).

Ichneumon maurus Cress.

One ♀ taken in July in Oak Creek Canon, Arizona, 6000 ft., by F. H. Snow.

Ichneumon hemimelanarius n. sp.

Belongs with *I. cæruleus*, etc., but readily distinguished by the black antennæ, black abdomen aad black wings, the latter having a violaceous reflection.

♂.—16 mm.—*Head.*—Chiefly cæruleous. face with adjoining and separated punctures, with a broad yellow band on each side, occupying one-third of the face and adjoining the eye, clypeus with distinctly separated and adjoining punctures; antennæ more than forty-two jointed and entirely black.

Thorax.—Entirely cæruleous, areola rugulose, almost circular, but distinctly emarginated on the basal margin, petiolarea a deep groove, bounded by parallel distinct carinæ, external median area enclosed by strong carinæ, very coarsely wrinkled, the outer angle forming a blunt tooth; nervures blackish, the abscissa between the recurrent nervure and the second transverse cubitus a little shorter than the second abcissa of the radius; coxæ, trochanters and greater part of femora cæruleus, anterior femora in front with a yellowish stripe, middle femora with a yellowish mark near apex on the anterior aspect, anterior and middle tibiæ and tarsi mostly yellow, with a black to brown stripe on the posterior aspect, the stripe not so distinct on the tarsi, posterior tibiæ with the anterior aspect of the basal half chiefly yellow, posterior legs with the second tarsal joint, partly the third, fourth and fifth joints almost entirely yellow.

Abdomen.—Black, the first segment violaceous above.

Type.—University of Kansas.

Type locality.—Oak Creek Canon, Arizona, 6000 ft.

One specimen collected in August, by F. H. Snow.

CHALCIDOIDEA.

PTEROMALIDÆ.

Metapachia.

ENCYRTIDÆ.

Copidosoma gelechiæ Hwd.

One specimen, Oak Creek Canon, 6000 ft. (F. H. Snow).

PERILAMPIDÆ.

Perilampus cyaneus Brulle.

Two specimens, Oak Creek Canon, August, 1902 (F. H. Snow).

Perilampus hyalinus Say.

One specimen, Oak Creek Canon, August, 1902 (F. H. Snow).

Euperilampus opacus Ashm.

One specimen, Oak Creek Canon, 6000 ft., July (F. H. Snow).

CHALCIDIDÆ.

Stomatoceras. •

Spilochalcis torvina Cress.

One specimen, Oak Creek Canon, 6000 ft., August (F. H. Snow).

Chalcis ovata Say.

One specimen, Oak Creek Canon, 6000 ft., August (F. H. Snow).

Acanthochalcis argentimaculata Ashm.

One specimen, Bill William's Fork, August (F. H. Snow).

Leucospis affinis Say.

Two females, Oak Creek Canon, 6000 ft., July and August (F. H. Snow).

Leucospis bicincta n. sp.

Readily distinguished from all other American species by the pale citron-yellow almost whitish markings and the two bands on the abdomen, one being basal, the other in the middle.

♂.—5 mm.—Structure, sculpture and color pattern, with the exceptions mentioned as in *affinis*. Upper portions of front and occiput and vertex strongly green, scape and next succeeding joint black, the joint beyond this brown (remaining joints broken off), legs black, with the following parts concolorous with the other pale markings; tips of the femora, anterior and posterior tibiæ in front and middle tibiæ with the upper half in front, tarsi pale brown, claws dark brown, wings faintly infuscated, the nervures black or nearly.

Type.—University of Kansas.

Type locality.—Oak Creek Canon, 6000 ft., Arizona.

One specimen collected in July, by F. H. Snow.

CYNIPOIDEA.

FIGITIDÆ.

Eucoila impatiens Say.

One specimen, Oak Creek Canon, 6000 ft., August, 1902 (F. H. Snow).

Figites coloradensis Ashm.

One specimen, Oak Creek Canon, 6000 ft., August (F. H. Snow).

PROCTOTRYPOIDEA.

SCELIONIDÆ.

Scelio venata Brues, sp. nov.

"*Female.*—Length 4.25 mm —Black, the coxæ, legs and markings on abdomen reddish or rufous. Head coarsely rugose; the narrow central portion of the face directly above the antennæ somewhat elevated, the raised portion bounded on each side by carinæ which converge posteriorly. Scape, pedicel and first flagellar joint of antennæ fuscous, remainder of flagellum black; pedicel distinctly shorter than the first flagellar joint; second and third joints about equal, the third nearly twice as wide as long; club narrower than usual, the sixth flagellar joint widest, two and one-half times as wide as long. Mesonotum coarsely rugose with no indications of furrows. Scutellum and metanotum similarly sculptured, the posterior part of the latter coarsely longitudinally striated, its lateral angles rectangular, not prominent. First abdominal segment striated, but little wider than long, narrowed basally. Second segment two times as wide as long, the third large, a little wider than long; fourth a trifle shorter; entire surface of abdomen finely aciculated; the second, third and fourth segments each with a large basal spot of reddish brown. Legs rufous, the hind coxæ brownish basally Wings brownish on apical half, the stigma small but very distinct, with a distinct oblique stigmal vein and a straight radial nervure which forms a long indistinct closed marginal cell."

"A single specimen from Bill William's Fork, Arizona, August, F. H. Snow."

"This species is closely related to *S. fuscipennis* Ashm., from which it is most easily distinguished by its pale coxæ, black tegulæ and spotted abdomen."

DIAPRIIDÆ.

Ceratopria sp.

Oak Creek Canon, Arizona, 6000 ft. (F. H. Snow).

VESPOIDEA.

MUTILLIDÆ.

Mutilla ægina Cress.

Oak Creek Canon, 6000 ft., July (F. H. Snow).

Mutilla (Timulla) vesta Cress.

Ft. Apache, August 26, 1897.

Mutilla hippodamia Fox.

Ft. Apache, August 26, 1897.

Mutilla (Dasymutilla) snoworum Ckll. and Fox.

Oak Creek Canon, 6000 ft., August (F. H. Snow).

Mutilla (Dasymutilla) sackenii Cress.

Female, Bill William's Fork, August (F. H. Snow); male, Congress Jc., July (F. H. Snow).

Mutilla quadriguttata Say.

Female, Ft. Apache, August 26, 1897. With only two yellow spots on the second abdominal segment.

Mutilla (Timulla) californica Rad.

Female, Oak Creek Canon, 6000 ft., July and August (F. H. Snow).

Mutilla (Timula) pacifica Cress.

Female, Bill William's Fork, August F. H. Snow.

Chyphotes attenuata Blake.

Ft. Apache, August 26, 1897.

TIPHIIDÆ.

Paratyphia albilabris Lep.

Ft. Apache, August 26, 1897.

SCOLIIDÆ.

Elis dives Prov.

Female, Bill William's Fork, August (F. H. Snow).

Elis plumipes Prov.

Female and male, Bill William's Fork, August (F. H. Snow).

Elis pilipes Sauss.

Male, August, 1902 (F. H. Snow).

Discolia hæmatodes Burm.

Two females, two males, Oak Creek Canon, 6000 ft., July and August (F. H. Snow); male, Bill William's Fork, August (F. H. Snow).

Discolia lecontei Cress.

Ft. Apache, August 26, 1897.

MYZINIDÆ.

Plesia frontalis Cress

Male, Congress Jct., July (F. H. Snow); Bill William's Fork, August (F. H. Snow).

CHRYSIDIDÆ.

Notozus marginatus Patt

Oak Creek Canon, 6000 ft., August F. H. Snow.

Holopyga horus Aar

Oak Creek Canon, 6000 ft., July (F. H. Snow).

Tetrachrysis cæruleus Fabr.

Oak Creek Canon, August, 1902 (F. H. Snow).

Tetrachrysis lauta Cress.

Oak Creek Canon, 6000 ft., August, 1902 (F. H. Snow).

Tetrachrysis tripartita Aar.

Oak Creek Canon, 6000 ft., August, 1902 (F. H. Snow).

Parnopes westcottii Mel. and Brues

Bill William's Fork, August (F. H. Snow).

EUMENIDÆ.

Eumenes bollii Cress.

Oak Creek Canon, 6000 ft., July (F. H. Snow).

Ancistrocerus birenimaculatus Sauss

Female and male, Humphrey's Peak, at base, 9500 ft., August (F. H. Snow).

Ancistrocerus bustamenti Sauss.

Two females, S. Arizona, August, 1902 (F. H. Snow).

One specimen (246) has the clypeus rather bidentate, and the postscutellum with a transverse yellow band. In other respects it agrees with the description of the species. In the other specimen (247) the yellow is entirely absent from the postscutellum.

Ancistrocerus tuberculiceps Sauss.

Oak Creek Canon, 6000 ft., July and August (F. H. Snow).

Odynerus annulatus Say

Oak Creek Creek, 6000 ft., July and August (F. H. Snow); Flagstaff, August, 1902 (F. H. Snow).

Odynerus hidalgi Sauss var

Oak Creek Canon, August, 1902 (F. H. Snow).

Odynerus iturbidi Sauss.

Oak Creek Canon, August, 1902 (F. H. Snow).

Odynerus toltecus Sauss.

Oak Creek Canon August, 1902 (F. H. Snow); Bill William's Fork, August (F. H. Snow).

Odynerus taos Cress

Oak Creek Canon, 6000 ft., July (F. H. Snow); Congress Jc., July (F. H. Snow).

Odynerus anormis Say.

Oak Creek Canon, 6000 ft., July (F. H. Snow).

VESPIDÆ.

Polybia flavitarsis Sauss

Oak Creek Canon, 6000 ft., August (F. H. Snow).

One ♀ with the subtegular and metathoracic pale marks indicated by dark brown, another with these marks entirely wanting. There are at least three types of coloration in this species representing, perhaps, as many races, of which the dark form is apparently one.

Polistes flavus Cress

Bill William's Fork, August (F. H. Snow).

Polistes aurifer Sauss.

Oak Creek Canon, August, 1902 (F. H. Snow).

Polistes texanus Cress.

Bill William's Fork, August, 1902 (F. H. Snow).

CEROPALIDÆ.

Pepsis cinnabarida Lucos.

Oak Creek Canon, August, 1902 (F. H. Snow).

Pepsis chrysothemis Lucas.
Congress Jc., July (F. H. Snow).

Pepsis boguei Fox.
Oak Creek Canon, 6000 ft. July (F. H. Snow).

Ceropales fraterna Say.
Oak Creek Canon, 6000 ft. July (F. H. Snow).

Cryptocheilus (Hemipogonius) conicus Say.
Oak Creek Canon, August, 1902 (F. H. Snow).

With the first recurrent nervure received a little before the middle of the second submarginal cell.

Pedinaspis planatus Fox.
Congress Jc., July (F. H. Snow).

Anoplius (Ferreola) subviolaceus Cress.
Bill William's Fork, August (F. H. Snow).

Anoplius (Pompilinus) fulgidus Cress.
Bill William's Fork, August (F. H. Snow).

Anoplius (Entypus) marginatus Say.
Bill William's Fork, August (F. H. Snow).

Anoplius (Batozonus) algidus Sm.
Oak Creek Canon, 6000 ft., July and August (F. H. Snow).

Race ? with the face almost entirely, posterior margin of pronotum, tibiæ, tarsi, scutellum to a great extent, postscutellum, metathoracic angles, abdominal segments behind the second more or less, yellow.

Anoplius (Pompilinus) apiculatus Sm.
Bill William's Fork, August (F. H. Snow).

Melanaporus dubius (Fox).
Male, Oak Creek Canon, 6000 ft., July and August (F. H. Snow).

SPHECOIDEA.

SPHECIDÆ.

The Sphecidæ here listed were determined by Dr. H. T. Fernald.

Sphex lucæ Sauss.
Oak Creek Canon, August, 1902 (F. H. Snow).

Sphex ashmeadii Fern.

Congress Jc., July (F. H. Snow); Bill William's Fork, August (F. H. Snow).

Parasphex ferruginosus Fox.

Congress Jc., July (F. H. Snow); Bill William's Fork, August (F. H. Snow).

Priononyx striatus Sm.

Bill William's Fork, August (F. H. Snow).

NYSSONIDÆ.

Gorytes costalis Cress.

Oak Creek Canon, 6000 ft., July (F. H. Snow).

Gorytes spilopterus Hdl.

Congress Jc., July (F. H. Snow); Oak Creek Canon, 6000 ft., August, 1902, July (F. H. Snow).

Gorytes eximius Prov.

Bill William's Fork, August (F. H. Snow).

Gorytes bipunctatus Say.

Oak Creek Canon, 6000 ft., August, 1902, July (F. H. Snow).

TRYPOXYLONIDÆ.

Trypoxylon arizonensis Fox.

Bill William's Fork, August (F. H. Snow).

Male very like the ♀ and has a spine on the posterior trochanter.

PHILANTHIDÆ.

Eucerceris rubripes Cress.

Oak Creek Canon, 6000 ft.. August, 1902, July (F. H. Snow).

Eucerceris unicornis Patt.

Oak Creek Canon, 6000 ft., August, 1902 (F. H. Snow).

Cerceris nasica Vier. and Ckll.

Oak Creek Canon, 6000 ft., August, 1902, July (F. H. Snow).

Cerceris sexta Say.
Humphrey's Peak, August, 1902 (Snow).

Cerceris biungulata Cress.
Oak Creek Canon, 6000 ft., August, 1902 (F. H. Snow).

Cerceris platyrhina Vier. and Ckll.
August, 1902 (F. H. Snow).

Specimen No. 151, ♂, has the following characters worthy of mention: clypeus anteriorly with four short, acute, rather tuberculate, equidistant projections. Enclosure of the metathorax rather coarsely striate. Pygidial area oblong, shining, closely coarsely punctured, a short spine just beneath and on a line with the lateral margin. Color almost exactly as in the female; middle and posterior trochanters and posterior coxæ partly yellow; posterior femora with the basal third yellow.

Cerceris macrosticta Vier. and Ckll.
Oak Creek Canon, 6000 ft., Aug., 1902 (F. H. Snow).

Cerceris ferruginior Vier. and Ckll.
Oak Creek Canon, 6000 ft., August, 1902 (F. H. Snow); Bill William's Fork, August (F. H. Snow).

Cerceris femur-rubrum Vier. and Ckll..
Congress Jc., July (F. H. Snow).

Cerceris fasciola Cress.
Oak Creek Canon, 6000 ft., August, 1902, July (F. H. Snow).

Cerceris rinconis Vier. and Ckll.
Bill William's Fork, August (F. H. Snow).

Cerceris acanthophilus Vier. and Ckll.
Congress Jc., July (F. H. Snow); Oak Creek Canon, 6000 ft., August, 1902, July (F. H. Snow).

Aphilanthops quadrinotatus Ashm.
Flagstaff, August, 1902 (F. H. Snow).

Aphilanthops taurulus Ckll.
Congress Jc., July (F. H. Snow).

Philanthus crabroniformis Sm.

Congress Jc., July (F. H. Snow); Oak Creek Canon, 6000 ft., August, 1902, July (F. H. Snow).

Philanthus punctatus cockerelli Dunn.

Oak Creek Canon, 6000 ft., July, August (F. H. Snow).

LARRIDÆ.

Plenoculus propinquus Fox.

Oak Creek Canon, 6000 ft., August (F. H. Snow).

Notogonia nigripennis occidentalis Vier.

Bill William's Fork, August (F. H. Snow).

Tachytes obnecurnu Cress.

Oak Creek Canon, 6000 ft., August, 1902 (F. H. Snow).

Tachytes spatulatus Fox.

Oak Creek Canon, 6000 ft. July (F. H. Snow).

Tachysphex propinquus Vier.

Oak Creek Canon, 6000 ft., August, 1902 (F. H. Snow).

BEMBECIDÆ.

Stizus godmani Cam.

Bill William's Fork, August (F. H. Snow); Oak Creek Canon, August, 1902 (F. H. Snow).

Bembex sayi Cress.

Oak Creek Canon, August, 1902 (F. H. Snow); Bill William's Fork, August (F. H. Snow); Congress Jc., July (F. H. Snow).

Bembex troglodytes Hdl.

Oak Creek Canon, 6000 ft., Aug. (F. H. Snow); Bill William's Fork, August (F. H. Snow).

Bembex nubilipennis Cress.

Oak Creek Canon, 6000 ft. July (F. H. Snow).

Stictia pictifrons Sm.

Oak Creek Canon, 6000 ft., Aug., 1902 (F. H. Snow).

PEMPHREDONIDÆ.

Mimesa punctatus Fox

Oak Creek Canon, 6000 ft., July and August (F. H. Snow).

Pemphredon inornatus Say.

Oak Creek Canon, 6000 ft., August, 1902 (F. H. Snow).

Stigmus inordinatus Fox.

Oak Creek Canon, 6000 ft., August (F. H. Snow).

CRABRONIDÆ.

Crabro decemmaculatus Say.

Oak Creek Canon, August, 1902 (F. H. Snow).

Crabro packardii Cress.

Oak Creek Canon, August, 1902 (F. H. Snow).

Crabro odyneroides Cress.

Oak Creek Canon, August, 1902 (F. H. Snow).

Crabro imbutis Fox.

Oak Creek Canon, August, 1902 (F. H. Snow).

Crabro chrysarginus Lep. and Brulle.

Oak Creek Canon, August, 1902, July (F. H. Snow).

Crabro dilectus Cress.

Oak Creek Canon, August, 1902 (F. H. Snow).

Crabro interruptus Lep. and Brulle.

Oak Creek Canon, August, 1902 (F. H. Snow).

OXYBELIDÆ.

Oxybelus cornutus Say.

Oak Creek Canon, Aug., 1902, July (F. H. Snow).

Notoglossa emarginata Say.

Oak Creek Canon, Aug., 1902, July (F. H. Snow).

APOIDEA.

HALICTIDÆ.

Prateraner ranunculi Rob.

Oak Creek Canon, Aug., 1902 (F. H. Snow).

NOMIIDÆ.

Nomia foxii D. T.

Oak Creek Canon, Aug., 1902, July (F. H. Snow).

PANURGIDÆ.

Rhophitoides fimbriatus Cress.

Humphrey's Peak at base, 9500 ft., August (F. H. Snow).

Halictoides oryx Vier.

Oak Creek Canon, August, 1902 (F. H. Snow).

Pseudopanurgus rugosus Robt.

Oak Creek Canon, Aug., 1902 (F. H. Snow).

Panurginus innuptus Ckll.

Oak Creek Canon, July (F. H. Snow).

Panurginus perlævis Ckll.

Oak Creek Canon, Aug. (F. H. Snow).

MELECTIDÆ.

Nomada (Cephen) texana Cress.

Oak Creek Canon, 6000 ft., Aug., 1902, July (F. H. Snow).

Ericrocis lata Cress.

Bill William's Fork, August (F. H. Snow).

Melecta interrupta Cress.

Oak Creek Canon, 6000 ft., July, August (F. H. Snow).

Triepeolus verbesinæ Ckll.

Bill William's Fork, August (F. H. Snow).

ANTHOPHORIDÆ.

Anthophora (Amegilla) californica Cress

Oak Creek Canon, August, 1902, July (F. H. Snow).

Anthophora (Amegilla) cleomis Ckll.

Oak Creek Canon, August, 1902, July (F. H. Snow).

Anthophora urbana Cress.

Oak Creek Canon, August, 1902, July (F. H. Snow).

Centris rhodopus Ckll

Bill William's Fork, August (F. H. Snow).

Clisodon terminalis Cress.

Oak Creek Canon, July (F. H. Snow).

Melissodes tristis Ckll

Oak Creek Canon, July, August (F. H. Snow).

Melissodes grindeliæ Ckll.

Oak Creek Canon, July, August (F. H. Snow).

Melissodes gilensis Ckll.

Oak Creek Canon, August, 1902 (F. H. Snow).

PROSOPIDÆ.

Prosopis ruidosensis Ckll.

Oak Creek Canon, August, 1902 (F. H. Snow).

BOMBIDÆ.

Bombus dorsalis Cress.

Oak Creek Canon, July, August, (F. H. Snow).

Bombus pennsylvanicus D. G.

Oak Creek Canon, August, (F. H. Snow).

Bombus prunellæ Ckll.

Oak Creek Canon, August, 1902 (F. H. Snow).

Bombus howardi Ckll.

Humphrey's Peak, at base, 9500 ft., August (F. H. Snow).

Psithyrus insularis Sm.

Oak Creek Canon, August, 1902 (F. H. Snow).

NEW MEXICO.

VESPOIDEA.

MUTILLIDÆ.

Mutilla (Timulla ?) montivaga Cress.

Female, Albuquerque, Aug. (Snow).

Mutilla (Euspinolia ?) oceola Blake.

Male, Magdalena.

Mutilla (Dasymutilla) comanche Blake.
Magdalena Mts., July, 1894 (Snow).

Mutilla (Dasymutilla) snoworum Ckll. and Fox
Albuquerque, Aug., 1894 (Snow).

Mutilla (Timulla) californica Rad.
Female, Magdalena, July, 1894 (Snow).

Mutilla (Photopsis ?) fulvohirta Cress
Albuquerque, Aug., 1894 (Snow).

EUMENIDÆ.

Ancistrocerus tuberculiceps Sauss
Magdalena Mts., July, 1894 (Snow).

Odynerus annulatus Say
Albuquerque, Magdalena Mts., July, 1894 (Snow).

Odynerus leucomelas Sauss.
Magdalena Mts., July, 1894 (Snow).

Odynerus arvensis Sauss.
Magdalena Mts., July, 1894 (Snow).

Odynerus anormis Say.
Magdalena Mts., July, 1894 (Snow).

CEROPALIDÆ.

Pepsis pallidolimbata Lucas.
Magdalena Mts., Aug., 1894 (Snow).

Anoplius (Sophropompilus) relativus Fox.
Albuquerque, Aug., 1894 (Snow).

Anoplius (Entypus) marginatus Say.
Albuquerque, Aug., 1894 (Snow).

SPHECOIDEA.

PHILANTHIDÆ.

Cerceris nasica Vier. and Ckll.
Near Las Vegas Hot Springs, Sept. (Snow).

Cerceris platyrhina Vier. and Ckll.
Magdalena Mts., July, 1894 (Snow).

Philanthus sanbornii Cress.

Magdalena Mts., July, 1894 (Snow).

BEMBECIDÆ.

Bembex pruinosa Fox.

Magdalena Mts., Aug., 1894 (Snow).

Stictia carolina Fabr.

Magdalena Mts., July, 1894 (Snow).

PEMPHREDONIDÆ.

Pemphredon inornatus Say.

Magdalena Mts., July, 1894 (Snow).

CRABRONIDÆ.

Crabro nigrifrons Cress.

Near Las Vegas Hot Springs, Sept. (Snow).

APOIDEA.

PANURGIDÆ.

Halictoides halictulus Cress.

Near Las Vegas Hot Springs, Sept. (Snow).

Panurginus innuptus Ckll.

Magdalena Mts., Aug., 1894 (Snow).

ANTHOPHORIDÆ.

Melissodes tristis Ckll.

Magdalena Mts., Aug., 1894 (Snow).

BOMBIDÆ.

Bombias auricomus Robt.

Magdalena Mts., July, 1894 (Snow).

Bombus appositus Cress.

Magdalena Mts., July, 1894 (Snow).

Bombus virginicus Oliv.

Magdalena Mts., July, 1894 (Snow).

Psithyrus insularis Sm.

Magdalena Mts., July, 1894 (Snow).

COLORADO.

VESPOIDEA.

MUTILLIDÆ.

Mutilla creusa Cress.

Females, Colorado Springs, 5915 ft., Aug. (E. S. Tucker).

Mutilla (Timulla) californica Rad

Female, Colorado Springs, 5915 ft., Aug. (E. S. Tucker).

Mutilla pacifica Cress.

Female, Estes Park, Aug., 1902 (F. H. Snow).

CHRYSIDIDÆ.

Tetrachrysis propria Aai.

Manitou Park, Aug. (F. H. Snow, U. of K., lot 159).

EUMENIDÆ.

Ancistrocerus tuberculiceps Sauss

Male (Snow).

VESPIDÆ.

Vespa occidentalis Cress.

Manitou Park, Aug. (F. H. Snow, U. of K., lot 159).

Vespa diabolica Sauss.

Manitou Park, Aug. (F. H. Snow, U. of K., lot 159).

CEROPALIDÆ.

Anoplius (Sophropompilus) relativus Fox

Manitou Park (F. H. Snow, U. of K., lot 236); Manitou, 6620 ft., Aug. (E. S. Tucker).

Anoplius (Ferreola) ingenuus Cress.

Colorado Springs, 5915 ft., Aug. (E. S. Tucker).

SPHECOIDEA.

LARRIDÆ.

Tachytes rufofasciatus Cress.

La Mar (Snow).

CRABRONIDÆ.

Crabro chrysarginus Lep. & Brulle.

APOIDEA.

HALICTIDÆ.

Sphecodium pycnanthemum Rob.

Bailey, Aug., 1890.

PANURGIDÆ.

Panurginus innuptus Ckll.

(Snow.)

Panurginus bakeri Ckll.

Manitou Park, Aug. (F. H. Snow, U. of K., lot 159).

MELECTIDÆ.

Nomada (Holonomada) vincta Say.

Manitou Park (F. H. Snow).

ANTHOPHORIDÆ.

Synhalonia crenulaticornis Ckll.

Manitou Park, Aug. (U. of K., lot 159, F. H. Snow).

BOMBIDÆ.

Bombus oppositus Cress.

Manitou Park (F. H. Snow); Estes Park, Aug., 1892 (F. H. Snow).

Psithyrus insularis Sm.

Manitou Park (F. H. (Snow).

ALASKA.

APOIDEA.

Bombus melanopygus Nyl.

(L. L. Dyche).

WYOMING.

ICHNEUMONIDÆ.

Campoplex wyomingensis n. sp.

Colored very like *C. scalarius* Prov., but much larger.

♂.—*Head.*—Anterior aspect dull, very closely punctulately sculptured, the clypeus almost appearing granular, space between the eyes at base about equal to the length of an eye, malar space about as high as the pedicellum is long; antennæ fifty-nine jointed and black, the scape and pedicellum together about as long as the first joint of the flagellum; head black, the mandibles yellow-black at apex.

Thorax.—Black, excepting the tegulæ which are yellow; nearly all of the posterior face occupied by a very broad longitudinal depression, the middle of which is rather transversely striate, the sides rugulose, the external area almost completely defined, the internal area well defined by distinct carinæ, the metanotum chiefly granular; wings with very dark brown nervures, the stigma in part paler, areola forming a trapezium that is petiolate, the petiole about one-half as long as the shortest side; anterior legs yellow, excepting the coxæ which, except at apex, are black, the trochanters have some brown on them beneath, and the femora are brown beneath, claws and onychia brown, middle legs colored like the anterior pair, posterior legs black, excepting the basal two-thirds of the tibiæ, which are yellow, all tibial spurs testaceous or yellowish testaceous.

Abdomen.—Ferruginous in greater part, petiole black; second segment black, except for an indistinct subapical band of ferruginous that extends anteriorly on the sides, third segment with a black spot at base, the succeeding segments with a median black mark that does not extend down on the sides.

Type.—University of Kansas.

Type locality.—Near Lander, Wyoming, Aug., Roy Moodie.

One specimen, no further data.

Anomalon semirufum Nort.

One ♀, 16 mm. long, with no raised lines on the convex metanotum, which bears a large black spot that occupies nearly all of its surface. Taken near Lander, Wyoming. Apparently belongs to Kriechbaumer's genus *Acanthostoma*, as given in Ashmead's Classification of the Ichneumon flies.

Pimpla landerensis n. sp.

In maculation very like *P. inquisitor*, from which it is readily distinguished by the structure and white of anterior and middle legs.

♀.—10 mm.—*Head.*—Black and polished, clypeus with a white spot on each side, scape black, about as long as the second joint of the flagellum, flagellum brown above, from rather whitish to pale brown to brown beneath, antennæ thirty jointed, palpi white.

Thorax.—Very like the head, except on the superior aspect and on the sides of the metanotum, where punctures occur, parallel carinæ also traverse the superior aspect of the metathorax longitudinally; thorax black, excepting the tubercles and a line prolonged anteriorly therefrom, tegulæ, a line beneath the same, posterior margin of the scutellum and a line on the postscutellum, which are white; wings hyaline, nervures dark brown, except at the base of the wing, where they are colorless, stigma pale brown, anterior and posterior corner whitish, the lower margin testaceous, areolet just sessile and forming a trapezium; anterior coxæ brownish and whitish, middle and posterior coxæ ferruginous, trochanters almost uniformly whitish, the middle and posterior proximal pairs partly testaceous.

femora more or less ferruginous, the anterior pair testaceous in front, whitish at apex, like the middle pair, posterior pair with a subapical blackish band, anterior and middle tibiæ and tarsi chiefly whitish, the middle tarsi tipped with dark brown, middle third of posterior tibiæ and the base whitish, otherwise dark brown, the posterior tarsal joints with the basal half whitish, the apical half dark brown.

Abdomen.—Black, ovipositor colorless, tipped with brown about half the length of the abdomen, first abdominal segment with a smooth polished anterior face, bounded by carinæ laterally, no longitudinal carinæ on disc, abdominal segments closely punctured with a shallow furrow near the smooth apical margin.

Type.—University of Kansas.

Type locality.—Near Lander, Wyoming, August, Roy Moodie.

One ♀, with no further data.

CHALCIDOIDEA.

PTEROMALIDÆ.

Platyterma citripes Ashm.

One ♂, Lusk, July, '95 (U. of K., lot 410).

CHALCIDIDÆ.

Chalcis tegularis Cress.

One specimen, Aug., 1895. No further data.

VESPOIDEA.

MUTILLIDÆ.

Mutilla caneo Blake.

Thirty miles north of Lusk, July, 1895 (U. of K., lot 472).

Mutilla (Timulla) californica Rad.

Thirty miles north of Lusk, July, 1895 (U. of K., lot 423).

CHRYSIDIDÆ.

Chrysis cæruleus Fabr.

Twelve miles northwest of Lusk, July, 1895 (U. of K., lot 428).

EUMENIDÆ.

Odynerus anormis Say.

Near Lander.

VESPIDÆ.

Polistes variatus Cress.

Near Lander.

CEROPALIDÆ.

Cryptocheilus (Hemipogonius) conicus Say

Near Lander.

Anoplius (Ferreola) subviolaceus Cress.

Forty miles north of Lusk, July, 1895 (U. of K., lot 415, lot 420).

SPHECOIDEA.

LARRIDÆ.

Tachytes spatulatus Fox.

Laramie Mts., Aug., 1895 (U. of K., lot 439).

BEMBECIDÆ.

Bembex amœna Hdl.

Near Lander.

APOIDEA.

BOMBIDÆ.

Bombus ternarius Say.

Near Lander.

ILLINOIS.

CHALCIDOIDEA.

CHALCIDIDÆ.

Chalcis ovata Say.

Champaign (W. A. Snow; U. of K., lot 344, sub. 3).

TORYMIDÆ.

Torymus.

Syntomaspis.

VESPOIDEA.

CHRYSIDIDÆ.

Chrysis (Tetrachrysis) nitidula Fabr.

S. Ill., May 16, 1891.

PENNSYLVANIA.

ICHNEUMONOIDEA.

ICHNEUMONIDÆ.

Ichneumon flavofacialis n. sp.

Comes nearest to the species in the group formed by *S. maurus*, *S. cincticornis*, *S. germanus* and *S. viola*, but is readily separated by its maculation and especially its entirely black antennæ. Also related to *S. odiosus*, which has hyaline wings.

♂.—17 mm.—*Face* with adjoining and almost adjoining punctures; clypeus with sparse punctures: malar space about as high as the scape is broad at apex; antennæ over forty jointed tip broken off, the scape and pedicellum together a little longer than the first joint of the flagellum, about as long as the combined length of the second and third joints of the flagellum.

Head, thorax and abdomen more or less closely punctured all over; basal area of metathorax distinctly defined by raised lines, the areola broader than long, subquadrate, the posterior boundary curved in or slightly emarginate, areola rugose, petiolarea rugulose, nearly parallel sided and occupying about two-thirds the length of the metathorax, external area separated from the external median area by a rather inconspicuous raised line, the latter area separated from the internal area by a very strong raised line, these lateral areas rather rugose, angular area apparently not represented, the spiracular and middle pleural areas rugose, partly separated by a rather indistinct raised line joining the spiracle with the pleural carina; areolet of the wings pentangular, the radial side of the polygon being as long as the external cubital side, the other sides subequal.

Almost entirely black; the wings distinctly smoky, with the nervures almost black, and the stigma brownish testaceous; the following parts almost completely yellow; scape in front, face beneath insertion of antennæ, apices of anterior and middle coxæ, proximal trochanters of anterior and middle legs at base and apex, proximal trochanters of posterior legs at apex, all distal trochanters, anterior and middle femora in front on the apical half partly; the second, third and fourth ventral abdominal segments brown.

Type.—University of Kansas.

Type locality.—Allegheny Co., Pennsylvania.

One ♂ collected by H. G. Klages.

CHALCIDOIDEA.

EULOPHIDÆ.

Closterocerus tricinctus Ashm., MS.

One ♀, "Penn."

EURYTOMIDÆ.

Decatoma varians Walsh.

One ♀ specimen, Jeannette (H. G. Klages).

CHALCIDIDÆ.

Phasgonophora sulcata Westw.

Two specimens (♀, ♂). No further data.

TORYMIDÆ.

Ormyrus brunneipes Prov.

One specimen. Penn. No further data.

Differs from the description of the type in having the scape all dark.

MISSOURI.

VESPOIDEA.

Mutilla hippodamia Fox.
Female, Kansas City (F. Rogers).

Mutilla sparsa Fox.
Female, Kansas City (F. Rogers).

Mutilla cypris Blake.
Female, Kansas City, (F. Rogers).

Mutilla scæva Blake.
Male, Kansas City (F. Rogers).

Mutilla ornativentris Cress.
Kansas City, July 10th, Aug. 17th (F. Rogers).

FLORIDA.

VESPOIDEA.

Mutilla (Timulla) californica Rad.

CALIFORNIA.

VESPOIDEA.

Mutilla (Dasymutilla) sackenii Cress.
Male, July (U. of K., lot 714, F. H. Snow).

Mutilla (Timulla) pacifica Cress.
Female.

Parnopes edwardsii Cress.
July (F. H. Snow, U. of K., lot 714).

Bembex amœna Hal.
July (F. H. Snow, U. of K., lot 714).

Stictia usitata Fox.
July (F. H. Snow, U. of K., lot 714).

On BRADYCINETUS and BOLBOCERAS of North America, with notes on other Scarabæidæ.

BY CHAS. SCHAEFFER, BROOKLYN, N. Y.

Boucomont in "Genera Insectorum," family Geotrupidæ. 1902, p. 3, regards *Bradycinetus* as a subgenus of *Athyreus*, which, according to his own definitions of *Athyreus*, will not hold good. He distinguishes *Athyreus* and *Bradycinetus* from *Bolboceras* by having the intermediate coxæ separated by "toute la largeur du mesosternum, qui est aussi large que long." This is of course not the case in the species of *Bradycinetus*, in which the intermediate intercoxal process is longer than broad and always narrower between than behind the coxæ, the latter separated by about one-fourth or one-half of the process in its widest part behind the coxæ. The intermediate coxæ in *Bolboceras* are "contigues ou séparées seulement par la pointe du mesosternum, ou alors mesosternum étroit, plus long que large." It is very evident that the author has not examined any of the species of *Bradycinetus*, which is to be regretted as in a work like "Genera Insectorum" such mistakes could and should have been avoided. *Bradycinetus* is much more closely related to *Bolboceras* than it is to *Athyreus;* the general form, different intermediate intercoxal process, scutellum and other characters separate *Athyreus* readily from *Bradycinetus* and *Bolboceras*, while the difference between the last two genera is only slight. A close study of the one-hundred and thirty nine species enumerated by Boucomont may even show that *Bradycinetus* is not distinct from *Bolboceras*, which I am rather inclined to believe, as the width of the intermediate intercoxal process in *Bradycellus carinatus*, described below, is already narrower between the coxæ than in the other species. For the present I keep the genus distinct till a critical study of all the species is made, which can only be done by those possessing sufficient material of the foreign species.

Bolboceras farctum and var. *tumefactum* have the intermediate coxal process between the coxæ elevated into a tooth-like elevation, which, together with the entirely divided eyes, to which Linell[*] has already called attention, necessitates the erection of a new genus.

The intermediate intercoxal process is in all our species broader behind the coxæ, slightly elevated and generally distinctly limited on each side, free from any hairs and very plainly visible.

For completeness I have given in the following table all the genera of the Geotrupini, which occur in our fauna, and also have included for comparison the genus *Athyreus*, which does not occur in the United States:

TABLE OF THE GENERA OF GEOTRUPINI.

1. Club of antennæ lenticular.......................................2.
   Club of antennæ lameliate.......................................**Geotrupes.**
2. Middle coxæ very widely separated, the process separating the coxæ as broad as long and of nearly equal width.......................**Athyreus.**
   Middle coxæ narrowly separated, the process longer than broad and always narrower between than behind the coxæ.......................3.
3. The intermediate intercoxal process between the coxæ less than one-fourth . the process in its widest part behind the coxæ.......................4.
   The intermediate intercoxal process between the coxæ one-fourth or more as wide as the process in its widest part behind the coxæ. **Bradycinetus.**
4. Eyes partially divided.......................................**Bolboceras.**
   Eyes entirely divided.......................................5.
5. Intermediate intercoxal process between the coxæ with a vertical tooth-like elevation.......................................**Bolbocerosoma.**
   Intercoxal process without tooth-like elevation between the coxæ. **Odontæus.**

BRADYCINETUS Horn.

Judging from the published accounts the more widely separated middle coxæ seems to be the only character distinguishing this genus from *Bolboceras.*

Excluding *minor* Linell and *hornii* Rivers, which are placed in *Bolboceras* for reasons given under that genus, our five species' can be distinguished by the following table:

TABLE OF THE SPECIES OF BRADYCINETUS Horn.

1. Apex of middle and hind tibiæ when viewed from the outer side deeply emarginate.......................................2.
   Apex of middle and hind tibiæ truncate.......................................3.
2. Shining, side margin of thorax distinctly serrate..........**fossatus** Hald.
   Dull, side margin of thorax entire..................**ferrugineus** Beauv.

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[*] Proc. U. S. Nat. Mus., vol. xviii, p. 723.

3. Thorax near apex with a slightly uneven. transverse carina joining at sides the lateral carina, left mandible regularly arcuate..................5.
Thorax near apex with a transverse row of punctures, but without carina, left mandible near apex obliquely bent inside, the outer angle of the bent portion broadly rounded, intermediate intercoxal process between the coxæ about one-half as wide as the process in its widest part behind the coxæ 4
4. Scutellum and elytra shining, striæ of elytra relatively deeply impressed and distinctly punctate................... ....**serratus** Lec.
Scutellum and elytra finely alutaceous, giving the surface a somewhat dull aspect, elytral striæ very feebly impressed and very finely punctate, var. **peninsularis** new var.
5. Intermediate intercoxal process between the coxæ slightly contracted and almost one-fourth as wide as the process in its widest part behind the coxæ................................ ....**carinatus** n. sp.

Bradycinetus carinatus n. sp.—Form of *serratus*, but slightly more robust, ferruginous, shining; thorax near apical margin with a transverse carina, which is on each side slightly bent, joining the lateral carina at sides. Head closely and coarsely punctate, punctuation sparser behind; left mandible regularly arcuate; clypeus elevated, nearly quadrate, at base on each side a tuberculiform elevation, connected with each other by a slightly arcuate carina, behind this a short indistinct cariniform elevation. Thorax in front retuse, the impressions in front and at sides moderately punctate and with sparser, coarser punctures intermixed, disk nearly impunctate, except a few punctures on the median line and at sides, near apical margin a slightly bent transverse carina which joins at sides the lateral carina, lateral margin crenate. Scutellum smooth at base, broader than long. Elytral striæ finely impressed and not coarsely punctate; intervals flat, apparently impunctate. Underside and legs with moderately long hairs; intermediate intercoxal process slightly contracted between the coxæ, and about one-fourth as wide as the process behind the coxæ and coarsely punctate at side. Middle and hind tibiæ on the outer side obliquely truncate at apex. Length, head porrected, 11–15 mm.

Huachuca Mts., Arizona; occurs also in Lower California, where it was taken at Santa Rosa and El Taste by Mr. Gustav Beyer.

The two sexes do not differ very much. What I consider the male has the clypeus in front of the arcuate ridge more obliquely descending and longer than the females, and has no tuberculiform elevations on each side, but this latter character is not always well pronounced in the females, especially the smaller which have the tubercles generally entirely lost. This is very distinct from our other species by the contracted and narrower intermediate intercoxal process, the regularly arcuate mandible and the frontal carina of thorax.

The process between the intermediate coxæ is narrower in this than in the other species, and is a step towards uniting *Bradycinetus* with *Bolboceras*.

Bradycinetus serratus var. **peninsularis** new. var.

Agrees in every respect with *serratus*, except that the scutellum and elytra are finely alutaceous and not shining, the striæ are extremely fine and very finely punctate; the elytra seems to be also not as convex and more parallel than in *serratus* and slightly broader behind. These differences give the specimens a distinct aspect and are constant in the large number of specimens seen which were all collected by Mr. Mr. Gustav Beyer in Santa Rosa and San Felipe in Lower California.

Bradycinetus serratus Lec.

This is the commonest of our species and well known; it occurs in Texas and Arizona.

The intermediate intercoxal process between the coxæ is about one-half as wide as the process in its widest part behind the coxæ and is not contracted in front, it becomes gradually wider behind.

Bradycinetus ferrugineus Beauv.

This and *fossatus* Hald. are our largest species and seem to be quite rare in collections. The intermediate intercoxal process in *ferrugineus* is comparatively longer and slightly narrower as in *serratus* Lec. Viewing the middle and hind tibiæ from the outer side, there will be seen in the former at middle of apex and in the latter at the interior angle a tooth-like prolongation; Dr. Horn called this emarginate, which expression I have used in the synoptic table. This emargination we find in *ferrugineus* Beauv., as well as in *fossatus* Hald., while all our other species of this genus and *Bolboceras* have the outer side of middle and hind tibiæ at apex obliquely truncate. In *ferrugineus* the sides of thorax are not serrate, at most slightly irregular. It is recorded from the Southern States, my specimen and others I have seen are from Florida.

Bradycinetus fossatus Hald.

Unfortunately I have no specimens of this species, which occurs in Texas and I believe I have also seen a female of this species from Missouri. It is of the same size as *ferrugineus* Beauv., but more shining and has the sides of thorax serrate. Dr. Horn describes the thorax of the male as being suddenly elevated in front, the anterior angles of the elevation acute and project outward, on each side a deep groove or fossa limited exteriorly by an obtuse tooth-like elevation. In the male of *ferrugineus* Beauv. the thorax has in front of the elevated portion on each side a slightly recurved sharp tooth and each side near base a somewhat broad obtuse projection, the clypeus is broadly emarginate, with the angles prominent; the clypeus in *fossatus* Hald. is strongly bisinuate.

BOLBOCERAS Kirby.

This genus is principally distinguished from the allied genera by the contiguous or nearly contiguous intermediate coxæ, and the eyes not entirely divided.

Bradycinetus hornii Rivers and *minor* Linell have the intermediate coxæ very narrowly separated, nearly contiguous, and must therefore be placed in *Bolbocerus*.

For *Bolbocerus farctum* Fab. I was compelled to erect a new genus on account of the entirely divided eyes and the intermediate intercoxal process having between the coxæ a tooth-like elevation.

The three species known to occur within our faunal limits may be known by the following table:

TABLE OF THE SPECIES OF BOLBOCERAS

1. Hind tibiæ with one transverse ridge on the upper edge, slightly below middle..**lazarus** Oliv.
Hind tibiæ with two distinct transverse ridges on the upper edge, one smaller, about middle, the other larger, about apical fourth 2
2. Large species, about 14 mm. long, anterior angles of thorax obtusely rounded, metasternum densely covered with long hairs..........**hornii** Riv.
Small species, about 9 mm. long, anterior angles of thorax acute, metasternum sparsely clothed with moderate long hairs...........**minor** Linell.

Of our three species *lazarus* Oliv. is very common widely distributed and well known; *minor* Linell, which occurs in S. Texas is very similar to the Californian *hornii* Rivers, from which it differs, besides the characters given in the table, by the more elongate scutellum, coarser elytral striæ, slightly longer antennal joints and club, the short, conical frontal horn of the male and having the intermediate coxæ not quite as narrowly separated. Both species—*hornii* Riv. and *minor* Linell—resemble *farctus* Fab. very much in form as well as in the armature of the head and thorax of the males.

The description and figure of the Mexican *Bolboceras arcuatus* Bates* agrees in nearly every respect with *Bradycinetus minor*

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* Biol. Cent. Am., vol. ii, pt. 2, p. 111.

Lineil. except that none of the fifteen specimens which I have examined, have a smooth space on the vertex, which is nearly as coarsely punctured as the head in front. One specimen only has the vertex more feebly punctured, and it is possible that this is variable in the Mexican species also and that the two will prove on comparison to be the same.

BOLBOCEROSOMA n. gen.

Eyes completely divided, intermediate intercoxal process between the coxæ with a tooth-like elevation, intermediate coxæ very narrowly separated, nearly contiguous. Other characters as in *Bolboceras*.

Type.—*Scarabæus farctus* Fab.

Bolbocerosoma farctum Fab.

In this well known and widely distributed species the number of striæ differ. Those in which the second and fifth striæ are absent or partly indicated are *farctum* Fab., those with seven entire striæ are *tumefactum* Beauv. Intermediate specimens occur and it is therefore hardly necessary to retain the latter name, as there is otherwise no difference between the two forms.

Canthon humectus Say (**indigaceus** Lec.).

In Henshaw's "Third Supplement to the Coleoptera of America North of Mexico," *humectus* is given as an additional species, but is according to Dr. Horn,* the same as *indigaceus* Lec.

Copris arizonensis n. sp.—Form of *mœchus* and *remotus* but larger. The male has the clypeus broadly emarginate, head in front coarsely punctate, behind smooth, frontal horn slightly arcuate. Thorax with a narrower median protuberance than in *remotus* or *mœchus*, which is at apex triangularly emarginate with the angles rounded, the latter straight, not divergent, surface of the protuberance slightly flattened, without longitudinal median impression, on each side near side margin a horn-like straight projection, the surface between these and the median protuberance deeply excavated and coarsely but rather sparsely punctate, between the usual short carina near side margin and the horn is at about middle a shallow fovea, which is coarsely punctured, surface of thorax coarsely punctured, densely at sides, more finely and sparsely punctured at middle of the disk; side margin of thorax oblique in front, front angles acute, hind angles broadly rounded.

The female has the clypeus triangularly emarginate, the frontal horn is shorter, dilated at apex and feebly emarginate, the median protuberance of thorax is broadly rounded in front, with a slight median impression at apex, the projections on each side are much smaller. in form of a conical tubercle, and the whole surface is more densely punctate than in the male.

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* See Bates, Biol. Cent. Am., vol. ii, pt. 2, pp. 385 and 386.

The elytral striæ have an impressed line and relatively small rounded punctures which are not closely placed. Length, male, 18 mm.; female, 20 mm.

Huachuca Mts., Arizona.

This species is readily distinguishable from *remotus* and *mœchus* by the sides of thorax oblique in front, not sinuate near the front angles, the larger size, the form of median prothoracic protuberance of male and the relatively small rounded punctures of elytral striæ, which are rather transverse in *mœchus* and *remotus*. With the Mexican species, having the sides of thorax near front angles not sinuate, it can only be compared with *klugi*, the male of which is said to have the thoracic foveæ and disk smooth, and the female the posterior part of thorax smooth.

Small males and females of *mœchus* have the thorax more densely punctate than the larger specimens.

Baron Harold,[*] in the table given of the Mexican species, has separated a small number from the rest of the species, which have the sides of thorax very near the front angles sinuate, which gives these a tooth-like appearance. This character is very evident in good preserved examples, but can also be traced in old worn specimens. The following table, which I prepared from Dr. Horn's material in Philadelphia for my own use, is given below with the hopes that it may prove useful to others in the identification of the North American species:

TABLE OF THE SPECIES OF COPRIS.

1. Sides of thorax near apical angles sinuate ....5.
   Sides of thorax near apical angles not sinuate ....2.
2. Underside of thorax, at sides in front of the transverse carina, strongly declivous, smaller species, about 9–11 mm............................3.
   Underside of thorax, at sides in front of the transverse carina not or feebly declivous, larger species, 15–20 mm..............................4.
3. Head, thorax and elytra smooth or very feebly obsoletely punctured, impressed basal marginal line almost impunctate, clypeal horn of male short, conical.....................................**gopheri** Hubbard.
   Head at sides and thorax rather coarsely punctured, elytral intervals finely punctate, impressed basal marginal line coarsely punctured, clypeal horn of male elongate ....**minutus** Drury.
4. Thorax with a deeply impressed and coarsely punctured median line, male with two frontal horns, the posterior one small, projecting obliquely forward.....................................**procidnus** Say.

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[*] Ann. Soc. Ent. Fr., 1863, p. 494.

Thorax without or in the female with at most a very feeble impressed median line; male with one, slightly arcuate, long frontal horn, median protuberance of prothorax narrow, with the apical angles not divergent. **arizonensis** n. sp.

5. Thorax dull, coarsely and very closely punctate, clypeus acutely incised. **anaglypticus** Say.

Thorax shining...6.

6. Clypeus broadly emarginate, median prothoracic protuberance of the male broad, with apical angles divergent, frontal horn of male arcuate. **remotus** Lec.

Clypeus triangularly emarginate; median thoracic protuberance of male narrow, angles straight, not divergent, frontal horn nearly straight. **mœchus** Lec.

The two species of *Pinotus* occurring in our fauna are only distinguishable from each other in the males. *P. colonicus* Say has the head in the male with two tubercles, and *P. carolinus* Linn. has the head with one tubercle in the male, otherwise there does not seem to be any difference.

LACHNOSTERNA Hope.

The late Ottomar Dietz collected in Brownsville, Texas, a specimen of *L. exorata* Horn and also several specimens of *L. æqualis* Lec., which I suspect to be the two sexes of one species; the former was described from the male, and the latter from the female. The form of head and thorax, the sculpture, the very short, squamiform hair in each puncture, and the more prominent upper tooth of the front tibia are the same in both, the difference in form is exactly like that seen in the two sexes of *lanceolata* Say. Taken all this in consideration, and the fact that Dr. Horn did not have a specimen of *æqualis* when he wrote his descriptions for the "Revision of the species of Lachnosterna," I think there is very little doubt of the correctness of my view, inasmuch as *exorata* looks strange in its present place.

The locality for *L. heterodoxa* and *fucata* was given by Dr. Horn as "southern Arizona or possibly in Chihuahua." Of the former I have taken several specimens at light in the Huachuca Mountains, Arizona, and received of the latter one specimen from Bisbee, Arizona, collected by my brother.

The following species appear to be new, and their identification will not cause any trouble, as they have strong characters which separate them easily from their nearest allies.

Lachnosterna arkansana n. sp.—Oblong, slightly broader behind, castaneous, shining. Clypeus moderately reflexed, apex distinctly but not deeply emarginate, surface and front of head coarsely punctuate, the latter more densely than the clypeus. Antennæ ten jointed, club as long as the preceeding joints. Thorax broadest at base, obliquely narrowed in front, behind slightly sinuate, margin feebly crenate, more so behind middle; surface coarsely and rather closely punctate, at middle of disk a short, longitudinal, smooth, median space. Elytra rugose, punctuation scarcely distinct; discal costæ feebly distinct, the submarginal scarcely visible. Pygidium convex, punctures not densely placed, coarse and partly confluent. Metasternum densely covered with long hairs. Abdomen finely and sparsely punctate at sides, the last two segments more coarsely. Last joint of maxillary palpi elongate, as long as the two preceding joints, not impressed. Claws arcuate, with a strong acute tooth at middle. Length 21 mm.

Male.—Antennæ ten-jointed, club as long as the preceding joints. Abdomen slightly flattened at middle, penultimate segment with an arcuate, feebly elevated rugose ridge at middle, behind which the segment is slightly depressed, not emarginate at apex. Hind tibiæ squarely truncate at apex, inner spur fixed and one-half as long as the outer spur, which is long and very feebly curved.

Arkansas. One male from Mr. Chas. Palm.

This species belongs with *fusca* and allies, the clypeus being coarsely but not densely punctate, and the thorax widest at base. From all of the species of this group it will be readily distinguished by the more coarsely rugose elytra, obliterating nearly the punctuation. From Linell's *kurlsiœi* it differs in being smaller and having a different form of ridge of the penultimate ventral segment. The genitalia are also different from any of those described and figured by Prof. Smith, but are unfortunately lost.

Lachnosterna pygidialis n. sp.—Oblong, broader behind, brown, shining. Clypeus flat, margin very feebly reflexed, apex distinctly emarginate, surface and front of head coarsely and densely punctate and clothed with erect hairs, which are shorter on the clypeus than on the front. Thorax slightly broader at base than at middle, narrowing to the front from about middle, behind nearly straight; side margin feebly crenate, basal margin on each side near hind angles impressed; surface relatively finely and not densely punctate, with rather long fulvous hairs. Elytra much more coarsely and closely punctate than the thorax, feebly rugose and shining, sparsely clothed with shorter recumbent hairs and some longer ones near base; discal costæ very feeble, submarginal costæ more distinct. Pygidium feebly convex, margin at apex reflexed, surface not densely but asperately punctate and sparsely pubescent with moderate, long hairs. Metasternum densely clothed with long fulvous hairs, pubescence of abdomen much shorter and sparser, last three abdominal segments coarsely and asperately punctate at middle, finer and sparser at sides, penultimate segment at middle not deeply excavated, last segment small, about one-fourth as wide as the penultimate. Hind tibiæ with both spurs free and slender, slightly curved, the inner a little shorter than the outer, apex of tibiæ truncate; claws feebly curved, the tooth small and nearer the base than the middle. Length 17 mm.

Indian River, Florida. One male in coll. Dietz.

This species enters Dr. Horn's group XII (*crenulata*), and has to be placed with *rubiginosa* and *parvidens*. From both it differs by the much more densely punctate clypeus and front, the much finer punctuation of thorax, which latter is also narrower, the more coarsely punctate elytra, the form of pygidium, and the entirely different genitalia. The claspers are symmetrical, immobile, not modified. Viewing them from the front, they are small, elongate, narrowing to apex from about middle, the apex emarginate, with the angles slightly divergent, the opening is elongate-oval from the base to the opening, the surface is shallowly canaliculate along the median line. Prof. Smith's figure of *quercus* on Plate lx, fig. 78*a*, in Proc. U. S. Nat. Mus., vol. xi, resemble those of *pygidialis* somewhat, but narrowing in the latter species from about middle, the side view is similar in shape to fig. 78*c*, but simple, not modified at at all, of even outline.

Lachnosterna latidens n. sp.—Oblong, broader behind, pale castaneous, shining. Clypeus short, transverse, margin moderately reflexed, apex emarginate; surface and front very coarsely punctate, head on the occiput smooth, clypeus and front with moderate long, erect hairs. Thorax broadly rounded and widest at about middle, strongly narrowing from this point to apex and base, side margin slightly uneven; surface coarsely, irregularly and sparsely punctate, with a few smaller punctures intermixed, sides, apical and basal margins with a few sparse, long, erect hairs. Elytra slightly rugose, sparsely and more finely punctate than the prothorax, sutural costæ distinct, discal and submarginal costæ obliterated, from each of the sparsely placed punctures arises in well preserved examples, a short stiff hair. Pygidium convex, moderately punctate and clothed with short stiff hairs. Metasternum with long yellowish hairs. Abdomen densely and more finely punctate at sides than at middle. Length 15 mm.

Male.—Antennæ ten-jointed, club as long as joints 2-7 together. Abdomen longitudinally impressed at middle, the impression on the penultimate segment finer, and the punctuation of this and the last segment coarser. Both spurs of hind tibiæ free, long, of nearly equal size and slightly curved. Claws strongly curved, with a very broad median tooth.

Arizona.

Female.—Antennæ shorter than in the male. Abdomen feebly impressed but more coarsely punctate in the middle than in the male. Pygidium gibbous at apex. Claws curved, median tooth broader than the apical part of the claw, but not quite as broad as in the male.

Huachuca Mts., Arizona.

By the structure of the claws and the apical gibbosity of the pygidium of the female this species departs from all the North American species, and will be easily recognized. With the Mexican species, having the claws similarly formed, I was unable to identify this species with certainty. The claws in *latidens* are similarly formed as the anterior or posterior claws in *heterodoxa*, but are shorter, slightly more arcuate, and the basal part not quite as prominent as in that species, near which it should be placed.

ANOPLOCEPHALUS n. gen.

Mentum slightly longer than broad at base, parallel behind to a little before middle, thence strongly narrowing to apex, which latter is obtuse; surface very coarsely punctured, with a deep large excavation in about basal half and with long, coarse hairs. Maxillæ short, slightly convex, unarmed, apex strongly oblique, apical margin beneath clothed with stiff hairs, which are visible from above. Maxillary palpi four jointed, first joint small, slightly arcuate, second joint longer than third, the latter slightly arcuate at basal fourth, last joint impressed, fusiform, longer than second. Labial palpi three jointed, first joint short, second not quite twice as long as the first, last joint impressed, longer than the two preceding joints together. Antennal club elongate oval, as long as the preceding joints in the male, shorter in the female. Mandibles small, simple, not visible from above, the external edge only visible beneath. Clypeus unarmed in both sexes, as long as the head, gradually but not strongly narrowing to apex, apical margin strongly reflexed and at middle deeply emarginate, clypeal suture absent. Prothorax wider than long, apex narrower than base, sides arcuate, hind angles rounded; sides, apex and base margined, the basal margin entire, not interrupted. Elytra elongate, nearly parallel, slightly wider behind; striæ deeply impressed and punctate. Prosternum with a post-coxal, prominent, obtuse tooth, partly hidden by the dense, long hairs. Front, middle and hind coxæ strongly transverse. Front tibiæ tridentate and of nearly equal size in the two sexes. Tarsi long; the hind tarsi much shorter in the female than in the male, first joint in the male elongate, nearly twice as long as the second, slightly longer than the second and more dilated at apex in the female: claws equal, simple and alike in the two sexes. Abdominal spiracles situated in the dorsal portion of the ventral segments, except the first, which is situated in the membrane connecting the dorsal and ventral surfaces of the abdomen. Pygidium convex, transverse. No stridulating organs.

Type.—*Anoplocephalus cribrifrons* n. sp.

This genus is difficult to place in the present classification. The unarmed head and thorax, alike in both sexes, would rather bring it in Lacordain's sub tribe *Cyclocephalides*, but differs from all the described genera by the distinct basal margin of the thorax.

As much as I was able to learn from the published descriptions this genus is intermediate between Lacordaire's *Cyclocephalides* and *Oryctides*.

Anoplocephalus cribrifrons n sp.—*Male.*—Elongate-oval, black, shining, underside and legs piceous or dark castaneous. Head and clypeus coarsely and rather cribrately punctate, front feebly convex; clypeus not separated by a suture, nearly flat, side margin more feebly reflexed than at apex, the latter strongly reflexed and deeply emarginate at middle, sides slightly arcuately narrowing to apex, feebly sinuate near the latter point. Prothorax transverse, simple, without tubercle or impressions, apex narrower than base, sides arcuate; apex, base and sides distinctly margined; hind angles rounded, front angles distinct; surface somewhat sparsely but not coarsely punctured behind, more densely at apex and sides. Elytra elongate-oval, slightly broader behind, surface not strongly convex, striæ deeply impressed with not densely placed ocellate punctures, intervals convex, rugose. Front tibiæ tridentate, middle and hind tibiæ with one well defined and one smaller indistinct ridge; in both, the apex is festooned with a number of more or less triangular teeth. Front and middle tarsi longer than the tibiæ, hind tarsi as long or slightly longer than the tibiæ; first joint of middle and hind tarsi feebly compressed and nearly twice as long as second, all the tarsi equal, simple. Sides of thorax beneath, prosternum and metasternum with moderately long, coarse, fulvous hairs. Last two abdominal segments nearly twice as broad as the preceding, last segment broadly emarginate at apex. Pygidium convex, feebly punctate at middle and apex, finely rugose along basal margin. Length 22 mm.: width 12.25 mm.

The female differs in having the clypeus more feebly reflexed and not as deeply emarginate, the pygidium not as convex, the last abdominal segment not emarginate, first joint of middle and hind tarsi more broadly dilated at apex and the front and middle tarsi slightly shorter, but the hind tarsi much shorter than in the male. Length 24 mm.; width 13 mm.

Huachuca Mts., Arizona.

There is nothing in our fauna with which this species could be compared. It has nearly the form of *Ancognatha manca*, but is longer, more robust, elytra deeply striate, and has a different clypeus and mouth parts.

SIX NEW PSELAPHIDÆ.

BY CHAS. SCHAEFFER, BROOKLYN, N. Y.

Mounting and rearranging a part of my Pselaphidæ, several new species were found, of which descriptions of the more interesting ones are given below. Our species of *Batrisus* are placed in *Batrisodes* by Raffray.*

Batrisodes beyeri n sp.—*Male.*—Black, front of head, clypeus, palpi, legs and antennæ paler. Head, excluding the eyes, as wide as the prothorax; eyes moderate, convex: genæ feebly arcuate and feebly convergent; surface slightly convex, carinæ at sides indistinct; circumambient sulcus deeply impressed, obsolete in front; foveæ deep, nude; sides and front outside the impressed line somewhat coarsely and sparsely punctate, sculpture sub-rugose at sides; front strongly produced, but scarcely declivous anteriorly, lower anterior margin of the produced portion at middle with two closely placed black spines, on each side of these the margin is oblique, blackish and bordered with yellowish silken hairs; below the produced portion the surface is deeply excavate and clothed with long and shorter silken hairs, which obscure more or less the surface sculpture and partly the modifications, but there is apparently a spine-like process at middle; clypeus apparently not reflexed at sides. Antennæ rather short and stout, slightly longer than the head and thorax; first joint stout, slightly arcuate beneath, second longer and more robust than third, third to eighth equal, ninth wider than eighth, transverse, tenth much longer, globose and with a small rounded fovea on underside near base, eleventh as wide as tenth, ovoidal, acuminate at apex. Prothorax slightly longer than wide, widest before middle, apex narrower than base; median line deeply impressed and terminating near base in a deeply impressed fovea, the tubercles on each side not very sharply pointed, lateral grooves deeply impressed, the carina between these and the median groove not very strong. Elytra as long as wide, humeri oblique, not spinose. Abdomen as long as the elytra and as wide as base, basal carina separated by about one-fifth of the abdominal width. Legs long, slender, posterior tibiæ with apical spine. Length 2 mm.

Black Mountain, North Carolina. September.

The female is similar to the male, from which it differs in the usual manner, by being smaller, the tenth antennal joint not as wide as the eleventh, and the front of head simple, not modified; the front and clypeus are rather sparsely punctate. This fine addition is dedicated to my friend, Mr. Gustav Beyer, with whom I collected this and other interesting species in North Carolina, Sept., 1903.

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* Ann. Soc. Ent. France, vol. lxxiii, p. 81.

It resembles *schmittii* very much in general appearance, but besides the nude occipital foveæ, it has the front more produced and differently modified, the head slightly narrower, intermediate antennal joints not as stout, and the basal thoracic crests not as sharply pointed. It is perhaps best placed near *globosus* and *foveicornis*,

Batrisodes antennatus n. sp.—*Male.*—Blackish brown, abdomen darker, antennæ, palpi and legs pale. Head, including the eyes, slightly wider than the thorax; eyes moderate, convex; genæ convergent and feebly arcuate; surface convex behind, and feebly punctured: foveæ nude: circumambient sulcus obliterated in front; sides and front, outside of the sulcus, densely punctured; the front is triangularly declivous and separated from the clypeus by a transversely impressed line; clypeus convex, coarsely punctured and not reflexed at sides and without any modifications. Antennæ as long or slightly longer than head and thorax; first joint stout, feebly arcuate below, second slightly longer and a little stouter than third, third to eighth of equal width, but gradually decreasing in length, ninth larger and transverse, and as seen from the underside acutely produced on the inner side, tenth slightly larger than the ninth, arcuate on the outside and slightly acute on the inner side, eleventh large, ovoidal, acuminate, upper surface convex, lower surface flat and with a large, transverse and very shallow excavation near base. Prothorax slightly longer than wide, widest at about middle, apex a little narrower than base; median line feeble, at sides deeply impressed; foveæ distinct; tubercles at best obtuse. Elytra slightly wider than long, feebly punctate; humeri oblique, not spinose. Abdomen at base slightly narrower than the elytra; last ventral segment simple. Legs long, slender, posterior tibiæ with apical spine. Length 2 mm.

Black Mountain, North Carolina, September.

This species has to be placed near *punctifrons*, which it resembles in many ways, but is readily distinguished from that species by the want of the small tubercle with the tuft of erect, flavate setæ, the different form of the ninth antennal joint and the basal transverse impression on the eleventh. The form of the ninth and tenth antennal joints as above described, can only be seen when the specimen is held in a certain position.

Reichenbachia dilatipes n. sp.—Convex, rufotestaceous, elytra and abdomen more visibly punctate than the prothorax, on which hardly any punctures are visible; pubescence very short, sparse and decumbent. Head including the eyes as broad as the thorax in its widest part; eyes moderately prominent, at less than their own length from the base; antennæ longer than head and thorax, second joint nearly as stout as the first but smaller, third and fourth subequal, fifth and sixth of nearly equal length, but each longer and slightly stouter than joint four, seventh shorter than the sixth, but equal in width, eighth very much shorter than the seventh, ninth as long as the seventh, but stouter, tenth nearly one and one-half as long as eighth and wider, eleventh as long as the ninth and tenth together, elongate-oval. Prothorax slightly wider than long, widest before the middle, foveæ normal, surface smooth, shining, scarcely at all punctured, except at sides near base. Elytra wider than long, humeri slightly oblique, discal striæ abbreviated at apex, at base two punctiform foveæ, surface finely not densely punctate, clothed with very fine, decumbent sparse hairs. Abdomen as wide as the elytra and shorter, carinæ of the first segment separated at base by slightly less than one-third the width of the segment, very short and only visible at base. Anterior and intermediate tibiæ normal, posterior tibiæ compressed and dilated gradually to middle, on the outer side a deep elongate, median excavation. Length 1.5 mm.

Texas (New Braunfels ?). One male in collection Dietz.

There will be no difficulty in distinguishing the male from any species In our fauna by the medially dilated hind tibiæ. The dilatation of the hind tibiæ of the males of *albionica* and allies is similar, but always apical, and the antennæ in these species have the fifth, sixth and sometimes more joints strongly modified, while these joints in *dilatipes* differ relatively only slightly in length and width from the usual form.

Caccoplectus spinipes n. sp.—Brown, elytra reddish castaneous, palpi paler. Head convex along the median line, sparsely clothed with moderately long, semi-erect hairs, very densely pubescent at base and at sides between the convex median part and the eyes, obscuring somewhat the large occipital foveæ; eyes large, basal; antennæ approximate, inserted beneath prominent, contiguous tubercles, moderately densely pubescent, with coarse and somewhat stiff hairs, first joint as wide as third, second much smaller, but scarcely narrower than the first or any of the following joints, third triangularly dilated beneath, fourth feebly so, fifth to tenth elongate and gradually increasing in length, but not in width, eleventh slightly longer than the tenth, but not wider. Maxillary palpi very small, apparently three jointed, first visible joint very small, second longer and elongate, third as long as the two together, oval. Thorax at middle wider than long, arcuately and somewhat broadly impressed near base, the impressions densely pubescent at sides, at middle the pubescence forms a short longitudinal line; surface very sparsely punctate; apex narrower than base, sides feebly sinuate behind the middle. Elytra as long as wide at base, sides gradually and feebly arcuately widening to apex with two approximate deeply impressed sutural and two entire approximate, discal striæ, the surface nearly smooth, except the narrow spaces between the two sutural and the two discal striæ, which are finely and sparsely punctate; base on each side with four rounded foveæ, from three of these the outer sutural and the two discal striæ terminate, the fourth is situated near the prominent and elongate humeral callus; surface sparsely pubescent, except the extreme apex, which has a densely pubescent transverse line. Abdomen shorter and slightly narrower than the elytra at apex, three segments visible from above, strongly margined at sides, the first two segments convex at middle, sides arcuately narrowing to apex, sparsely clothed with fulvous hairs, apical margin of each segment densely covered with short fulvous pubescence; ventral segments at apex and mesosternum at sides very densely pubescent, rest very sparsely pubescent with longer hairs. Anterior and intermediate trochanters very long, posterior shorter; anterior femora elongate, with a stouter spine at about middle beneath, and three narrower spines between this and the base; front tibiæ straight, beneath at middle slightly wider and armed with a spine, intermediate femora slightly thickened, with one tubercle beneath and around this four fine spines, middle tibiæ hardly arcuate and of nearly equal width throughout, beneath, slightly below middle, an oblique spine; posterior femora and tibiæ elongate and without spines or tubercles; tarsi with one claw. Length 2 mm.

Texas. One male in collection, Dietz.

The long intermediate trochanters, the single claw and the head flat beneath brings this species in Raffray's tribe Holozodini,* though the anterior and intermediate trochanters are as long or even slightly longer than in our species of *Pselaphus* and the other genera placed in the tribe Pselaphini. Of the two genera constituting the tribe Holozodini, the above described species agrees best with the Central American genus *Caccoplectus*, though differing in several ways from the descriptions given by Sharp and Raffray.

The head in *spinipes* seems to be of nearly the same structure as in *celatus*—short, with the mouth inferior, not prominent, the thorax is also similar and the elytra have the geminate sutural and discal striæ as in *celatus*. Judging from the figure the eyes in *celatus* are much further removed from the base than in *spinipes*, in which they are close to the base, and the antennæ differ greatly from those of the latter species. A new genus will eventually be necessary for this species, but for the present it is left in *Caccoplectus* till more material is available.

Fustiger knausii n. sp.—*Male.*—Form, size and color of *F. fuchsii* Brend., from which it differs by having the head in front short, convex and not longitudinally impressed, the second antennal joints slightly longer, the eyes smaller, the intermediate trochanters unarmed, the intermediate tibiæ shorter and stouter and with a short spine-like tubercle at apical third. The antennal fossæ extend more to the front, which causes the latter to be strongly contracted and much narrower than in *fuchsii*.

Claudcroft, New Mexico; collected by Mr. Warren Knaus, to whom I take pleasure in dedicating this species.

F. fuchsii Brend. has the head in front obliquely prolonged and with a longitudinal median groove, which is smooth and shining at the bottom, the intermediate trochanters are armed with a large curved spine, and the intermediate tibiæ have at about middle a straight, slightly smaller spine than the one on the trochanters.

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* Ann. Soc. Ent. Fr., vol. lxxii, pp. 488 and 491.

The antennal fossæ are limited in *knausii* anterior to the eye as in *californicus*, but the outline of the second antennal joint is not concave as in the latter species.

From Dr. Brendel's description it is to be inferred that *californicus* has the front of head similar to *fuchsii*, which is in *knausii* entirely different.

In the "Genera et Cataloque des Pselaphides," by A. Raffray, in Ann. Soc. Ent. de Fr., 1904, the genus *Fustiger* Lec. is revived for our species.

Adranes dietzii n. sp.—Form and color of *lecontei*, slightly smaller, elytral suture not as deeply depressed, sides of thorax behind middle not as strongly compressed and elytra more coarsely punctured than that species.

Male.—Head rotundate-truncate in front, gradually narrowing to base: second antennal joint not or very feebly narrower towards apex; prothorax nearly as long as broad, widest slightly before middle, strongly narrowing to apex, but feebly so to base, sides behind middle obliquely impressed, but not as strongly as in *lecontei*, surface sparsely punctate and pubescent with short yellowish hairs, median basal fovea moderately large and nude. Elytra at base as wide as the thorax at base, gradually widening towards apex, sides very feebly arcuate: suture in comparison with *lecontei* more feebly depressed; surface relatively coarsely punctured, especially near apex, pubescence moderate, not concealing the shining surface, on each side near apex a tuft of longer yellowish silken hairs. Abdomen more shining than the rest of the body and very sparsely clothed with a few hairs, broader than the elytra, especially near base, margined, the margin at base more widely reflexed and clothed with a tuft of yellow silken hairs; basal excavation nearly as in *lecontei*. Body beneath smooth and shining, scarcely pubescent, except the metasternum, which has a large, rounded impression, filled with a dense yellow pubescence; intermediate femora with a long and at apex slightly curved spine, intermediate tibiæ about two-thirds as long as the femora, stout, of nearly equal width throughout, at apical third a blunt tooth. Length 2.5 mm.

Tulare Co., California, in coll. Dietz.

This species is very near the *Adranes taylori* Wickh., but differs from it by the head gradually and evenly narrowing to apex, seemingly coarser punctuation of elytra, the strong femoral spine, the tibiæ stouter and shorter, with the tooth nearer to apex and not sinuate and narrow within (judging from the figure).

It differs from *lecontei* by having a broader thorax, elytral suture not as deeply depressed, a stronger and denser punctuation; besides the different form of the intermediate tibiæ the male has the metasternum with a simple large rounded impression, which is, in *lecontei*, bordered on each side with a large triangular tooth. It would be interesting to know the formation of the metasternum in *pacificus* and *taylori*. In the female of *dietzii* the tibiæ and metasternum are simple.

In my two specimens of *coecus*, one from Staten Island and the other from New Jersey, the second joints of antennæ are not narrowed to tip, but slightly narrower at base, the metasternum in the male is foveate and densely pubescent as in *dietzii*.

NEW ANTHRIBIDÆ.

BY CHAS. SCHAEFFER.

On the different entomological expeditions made during the last four years to Texas, Utah and Arizona in the interest of the Brooklyn Museum, a comparatively large number of new species of Anthribidæ were taken. The family is exceedingly well represented in Brownsville, Texas, if we take in consideration the small number of species occurring within the limits of the United States. From this interesting semitropical region twenty-one species are known, of which seven are new. The Anthribid fauna of the Huachuca Mts, Arizona, as far as known, is in comparison with the Brownsville fauna not as rich, but every species taken there proved to be new.

In the "Cataloque des Anthribides" by A. Bovie, published in Ann. Soc. Ent. Belg., vol. xlix, p. 218, several changes have been made, which concern also some of our genera and species.

The catalogue has been revised by Dr. Jordan, who, having been for years the principal worker in this family, possesses a good knowledge of these insects.

Dealing with the species of the entire globe gives him naturally a wider view and a better understanding of the relationship of the different genera than those dealing only with a limited fauna, where, as in our own, the family is comparatively poorly represented, and some of the genera seem to stand quite isolated. Unfortunately Dr. Jordan does not seem to have seen some of our species, which is undoubtedly the cause of placing them wrongly.

The position given *Ormiscus* (*Hormiscus*,—between *Ischnocerus* and *Eurymycter*—including *Gonops* and *Toxotropis* as synonyms, and followed by *Eusphyrus*, may be correct, as there are a number of genera placed between them, which do not occur in our fauna, but placing *Tropideres* and *Phaenosolena* between *Eurymycter* and *Gonotropis* is to me unnatural. The two last named genera are more closely related to each other than they are to others, and are best left as they stand in our list.

The genera *Gonops* and *Toxotropis* are made synonyms of *Ormiscus* (*Hormiscus*). The characters separating the first two genera are slight and consist only of the spur-like process at apex of middle and hind tibiæ of the males of *Gonops*, a character which I have not seen in any of the species of *Toxotropis*, but which is said to be present in the Central and South American species, included in the genus *Ormiscus* by Dr. Jordan, in some of which only the middle tibiæ are armed with a short spur. Our *Gonops fissunguis* would therefore only be congeneric with the Central and South American species placed in *Ormiscus*. The males of *Toxotropis* as above stated have no spur-like processes on the middle and hind tibiæ, but I do not think this character is important enough to keep this genus distinct. For the present I think it better to retain *Toxotropis* for those species having no spur like process at apex of hind and middle tibiæ in the males, till our species have been studied and compared with the Central and South American species.

Eusphyrus also cannot, in my opinion, be retained as distinct from *Toxotropis*. The position of the basal carina, as already remarked by Dr. Jordan,* is variable; *quercus* and *eusphyroides*, described below, connect the two genera, especially the latter species, which, if the thorax is kept in correct position, arouses some doubt as to its position, and may be equally well placed in *Eusphyrus*, though the carina is not quite basal.

Our species of all these genera do not entirely agree with the description of *Ormiscus* by Lacordaire, but some of the Central and South American species may bridge over the differences, in which case the species of *Eusphyrus* have also to be placed in *Ormiscus*, or if the tibial spurs are thought to be of generic importance, *Toxotropis* has to be retained with *Eusphyrus* as synonym, but, as already stated, I do not think that the presence or absence of these spurs is of generic importance.

Typical *Tropideres* are said not to occur in America, but *bimaculatus* is given in the catalogue under *Tropideres*, while *rectus* is doubtfully placed with others, which are said either to belong in *Monocl***us*, *Goniocla**us* or *Homoclæus*. *Bimaculatus*, if not a true *Tropideres*, would be best placed in *Monoclæus*, though the antebasal carina is distinctly curved forward at sides, not quite extending to the middle; *rectus* does not seem to agree with any of the proposed genera, and if the characters hold good, used for the separation of these apparently closely allied genera, a new genus will be necessary for this species.

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* Novitates Zoologicae, vol. xi, p. 286.

Euparius Schönh., as the older name is used instead of *Cratoparis*.

Under the genus *Anthribus* only *cornutus* of our species is given in the catalogue, while *lividus*, *vagus*, *bipunctatus* and *penicellatus* are referred to *Brachytarsus*. This course is a little strange, and I do not see any reason for separating the last four species from *cornutus* and putting them in *Brachytarsus*, where they are entirely out of place.

Dr. Jordan will be the author of the family Anthribidæ in Wytsmann's Genera Insectorum, and it is to be hoped that he will not make the same mistake as his co-workers, in depending on the descriptions of certain genera alone, which resulted in several instances of grave errors, which could have been avoided and should not occur in a work of that kind.

It has been my intention to give tables for the determination of species of the larger genera, but I could not obtain one or two species of *Toxotropis* and also of *Brachytarsus*, of which the descriptions where not sufficient for this purpose.

I hope, however, to publish these later, or if enough material could be obtained, a revision of the entire family.

Phanosolena arizonica n. sp.—Pubescence brownish black, on thorax and elytra intermixed with testaceous and white, the former condensed more at the elytral humeri and sides, and the white forming on the third interval a few short lines, also on the fourth interval and at apex a few spots of white hairs; otherwise in form and structure as in *nigrotuberculata*, except that the beak in the male, on each side above the antennal fossæ is strongly convex, giving it a more contracted appearance and causing the median line to be impressed; the eyes are separated from the antennal fossæ by not quite half the width of the eye, which is in the male smaller than the antennal fossæ, the latter is large and somewhat triangular shaped in the male; in the female smaller, about the size of the eye. Length, male, 4.5 mm.; female, 3.5 mm.

Huachuca Mts., Arizona, August 10th.

This species is very close to *nigrotuberculata*, but is much larger, of a darker color, has the eyes distinctly separated from the antennal fossæ, the latter are very close to the eyes in *nigrotuberculata*, and the beak of the male on each side, between the antennal insertion, very convex and at middle impressed.

Toxotropis sextuberculatus n. sp.—Brown, pubescence on head, thorax and elytra intermixed with cinereous not forming a distinct design; third elytral interval with three tubercles of which the subbasal one is the largest; scutellum white. Front convex, eyes oblique, emarginate; antennæ short, reaching to the hind angles of thorax basal joints pale, the others piceous. Antebasal ridge of prothorax broadly rounded. Metasternum moderately densely clothed with white hairs, abdomen more sparsely and with shorter hairs. Legs pale, except tibiæ at apex and partly the tarsi blackish, claws deeply cleft, the inner portions of the cleft claws touching each other. Length 2 5 mm.

Enterprise, Florida, collected by the late Ottomar Dietz.

By the deeply cleft claws this species has to be placed with *irroratus* and *submetallicus*, from which and from all our other species it will be easily known by the tuberculate third elytral interval. The basal tubercle is the largest, the second is situated slightly behind middle and the third near apex.

Toxotropis eusphyroides n. sp.—Pale brown, head, thorax and elytra intermixed with yellowish cinereous pubescence, forming a more or less well defined median line on the thorax with some more or less confluent spots at sides, on the elytra a broad basal, a post median and apical fasciæ, these fasciæ more or less confluent, leaving a basal, a large median spot, the latter of irregular outline and an apical transverse band dark. Head convex; eyes oblique, emarginate; beak slightly narrower at base than at apex, the latter feebly emarginate; antennal fossæ not visible from above; antennæ pale, club darker, joints three to eight decreasing in width, club somewhat loosely formed. Prothorax wider at base than long, sides gradually narrowing to apex, antebasal ridge broadly arcuate at middle, very near the base of elytra, hind angles prominent. Elytra nearly parallel-sided, striæ moderately closely punctured. Body beneath moderately densely pubescent. Femora darker than the tibiæ, the latter and the first tarsal joint black at apex; claws cleft, the inner portion smaller than the outer and convergent. Length 2 25–2.5 mm.

Brownsville, Texas, July.

The more prominent hind angles of thorax and the general form suggest *Eusphyrus*. The position of the antebasal carina is in this species closer to the elytral base than in the other species, except *quercus*, from which the form of claws, the more prominent basal angles of thorax and the coloration will easily separate it. In general appearance and coloration it resembles very much *Eusphyrus walshii.*

Toxotropis quercus n. sp.—Blackish brown, inclining to reddish brown in some parts; head, thorax and elytra with cinereous hairs intermixed, the pale hairs forming on the elytra a broad basal fascia, leaving on each side at middle of base two darker spots, suture and apex also with cinereous hairs. Head convex, eyes oblique, emarginate, beak strongly transverse, feebly emarginate at apex. Antennal joints pale at base, the outer darker, gradually decreasing in length. Thorax at base as wide as long, sides nearly parallel behind to about middle, then feebly arcuately narrowing to apex; antebasal carina broadly but not strongly lobed at middle and not very far from the base of the elytra, not reflexed at sides. Elytra parallel at sides, broadly rounded at apex, striate; striæ punctate, intervals flat, surface densely covered with blackish brown hairs, intermixed with cinereous hairs, the latter condensed in a broad basal fascia, leaving two darker spots on each side of base: a sutural line and irregular apical fascia also cinereous. Body beneath not densely clothed with cinereous pubescence Legs pale, except apex of hind tibiæ and tarsi blackish; claws with a small tooth Length 2.75 mm.

Huachuca Mts., Arizona.

This species is easily recognized from the others, with the claws simply toothed, by the more robust form and the position of the antebasal ridge of prothorax, which is nearer the base than in any of our other species, except *eusphyroides*, which has the hind angles of thorax prominent and the claws deeply cleft.

Toxotropis albofasciatus n. sp.—Blackish brown, head, thorax and elytra intermixed with white pubescence, the latter forming at basal third a narrow arcuate fascia not extending to the side margin, but along the suture to base, at apical third, along the sides and thorax are a few small spots of white hairs. Head convex, eyes oblique, emarginate, antennal fossæ not visible from above, close to the eyes; antennæ piceous, reaching to the hind angles of thorax, joints three to eight gradually decreasing in length, club relatively more compact than in the other species. Prothorax at base broader than long, sides feebly narrowing to about apical third, then slightly arcuately narrowing to apex; antebasal carina broadly rounded at middle, not recurved at sides. Elytra twice as long as the thorax, sides parallel, striæ impressed, moderately punctate. Body beneath rather sparsely clothed with cinereous pubescence. Tarsi as long or slightly longer than the tibiæ, claws feebly toothed. Length 2 mm.

Brownsville, Texas, June and July.

The nearly black pubescence of the upper surface and the well-defined, narrow, arcuate, white post-basal fascia render the recognition of this species easy. The form is also slightly shorter and a little more robust than *pusillus*, and the antennal fossæ are nearer the eyes than in any of our other species.

Eusphyrus rectus n. sp.—Brown, with pale hairs intermixed, which predominate on elytra, leaving there a subbasal spot, a postmedian sutural patch and some smaller spots at apex, brown. Head convex, beak distinctly narrower at base than at apex, the latter feebly emarginate; eyes oblique, emarginate. Basal joints of antennæ pale, outer joints and club dark, the latter slightly more compact than in *walshii*. Thorax broader at base than long, sides feebly narrowing to about middle, then slightly more strongly to apex; basal carina close to the margin, straight, not arcuate, basal angles feebly prominent. Elytra striate, striæ punctate, rather densely pubescent with brown and pale hairs, basal margin slightly emarginate and feebly retracted. Underside sparsely pubescent with cinereous hairs. Femora darker than the tibiæ. Length 2 mm.

Brownsville, Texas, July.

This species differs from *walshii* in its straight basal carina of the thorax, feebly lobed at middle in *walshii*, the less prominent hind angles of the thorax, the much denser pubescence and the slightly more compact antennal club.

Eusphyrus arizonensis n. sp.—Form, size and coloration as in *walshii*, from which it differs in the denser pubescence, more irrorated with paler spots, the basal carina of thorax relatively feebly lobed at middle and the more compact antennal club, the latter is larger and more loosely jointed in *walshii*. Length 3 mm.

Huachuca Mts., Arizona.

This species is very close to *walshii*, of which it may prove to be a variety, but the differences mentioned above are constant in the small series which I have seen.

GRIBURIOSOMA n. gen.

Head feebly convex; beak slightly more than twice as broad as long, sides dilated over the antennal cavities, sinuate near the eyes, obliquely rounded at apical angles and sinuate at middle of apex; eyes slightly oval, not oblique, emarginate below; antennal cavities large, distinctly limited in front of eyes; vertical and somewhat triangularly shaped, antennæ very short, as long as the head and beak, first and second joints equal, stouter than the others, three and four equal, fifth nearly as long as fourth and slightly wider, sixth to eighth gradually decreasing in length, ninth to eleventh forming a somewhat compact club; false mentum deeply arcuately emarginate, lobes obtuse at apex. Prothorax wider at base than long, longer dorsally than laterally; carina feebly antebasal, slightly arcuate at middle, recurved at side and extending not quite to the middle, inferior basal carina visible at sides and connected with the subbasal carina at hind angles. Elytra about twice as long as prothorax, strongly declivous at apex. Pygidium slightly broader at base than long, narrowing to the rounded apex. Hind femora as long as abdomen, tarsi as long as the tibiæ, first joint of hind tarsi as long as the following, second joint short, covering the third, claw joint longer than the second joint, claws feebly toothed. Anterior coxæ nearly contiguous. Mesosternal process vertical, slightly narrowing to apex, which is rounded.

Type.—*Griburiosoma platunum* n. sp.

Judging from Lacordaire's description, this genus seems to be near *Phœniton* Schönh., but the form of the antennal joints is different, the other differences are slight and may be variable in the species of the latter genus.

Griburiosoma platanum n. sp.—Black, thorax red, tibiæ and apex of first joint of tarsi pale. Head rather densely covered with greyish white hairs. Antennæ black. Sides of thorax gradually narrowing to apex, sparsely clothed with white hairs, surface longitudinally, rugosely sculptured, red, apex blackish. Elytra striate, striæ closely punctate, black, clothed at base, sides and declivous apex with short sparse white hairs. Underside and pygidium more densely pubescent with longer white hairs. Length 6 mm.

Huachuca Mts., Arizona.

I obtained this species from dead branches of a sycamore. It resembles at first sight in form, color and markings *Griburius montezumæ*. There is also an indistinct, obscure, reddish spot on each side of elytra; the subbasal and inferior carina of the thorax are black, except the continuation of the subbasal carina at sides from a little above the hind angles, where it has the color of thorax.

Phœnicobius schwarzii n. sp.—*Male*.—Elongate, upper surface nearly uniformly clothed with ochreous hairs. Head feebly convex, eyes feebly emarginate, clypeus at sides near antennal insertion feebly elevated; antennæ twice as long as the body, formed as in *chamærops*. Thorax at base longer than broad, basal carina feebly lobed at middle, recurved along the sides to about middle, hind angles rounded, sides near the latter slightly sinuate, disk on each side of median line impressed; on each side, outside of these impressions, a not very strong tuberculiform elevation. Elytra more than twice as long as the thorax, striæ not impressed, but consisting of rows of moderately large punctures. Body beneath rather densely clothed with paler hairs; legs annulated, tarsi shorter than the tibiæ, formed as in *chamæropis*, claws cleft, the inner portion smaller than the outer. Length 9.25 mm.

Female.—Antennæ shorter than the body, beak at sides not elevated above the antennal fossæ, which are smaller than those of the male; otherwise as in the male. Length 8 mm.

Brownsville, Texas, U. S. Nat. Museum.

I take pleasure in dedicating this species to Mr. E. A. Schwarz. It is readily distinguished from *chamæropis* by its nearly uniform coloration, denser pubescence and more robust form, There are a few irregularly placed, apparently darker spots on elytra, caused by the pubescence being there yellowish grey and finer and sparser, permitting the surface color of the elytra to be seen; near the side margins of elytra are a few spots of darker hairs, the head has a darker median line, and the thoracic impressions are also slightly darker. The specimens were taken inside of a dead leaf stem of *Sabal mexicana*, August 14th, by Prof. Townsend.

Euparius subtesselatus n. sp.—Elongate-oval, narrower than *lunatus;* thorax coarsely and densely punctate; pubescence blackish, with patches and spots of ochraceous and yellowish gray intermixed on thorax and elytra. Head densely punctate, covered densely with ochraceous hairs, beak feebly emarginate at apex: antennæ pale, club black, first and second joint stout, second joint much shorter than first, three as long but narrower than the first, four to eight gradually decreasing in length, joints of the club nearly as in *lunatus*. Thorax slightly broader at base than long, basal carina feebly arcuate, rectangular, recurved at sides, reaching not quite to middle, before the basal angles slightly sinuate; surface coarsely and densely punctate, sparsely pubescent, with blackish brown hairs, intermixed with ochreous spots, especially near apex and at middle of disk. Elytra about two and one half times as long as the prothorax, striate-punctate, punctures more closely placed and larger than in *lunatus*, intervals feebly convex and finely and sparsely punctate; pubescence blackish brown, variegated with ochraceous and yellowish grey patches and spots, of which an elongate basal patch is the largest, occupying on each side the second, third and fourth elytral intervals to not quite down the middle, leaving a large scutellar space and suture darker, third interval and apex tesselated with some paler spots, sutural interval faintly so. Body beneath sparsely clothed with short greyish pubescence. Legs black, except the tibiæ at middle and nearly the entire first joint of middle and hind tibiæ pale. Length 6 mm.

Arizona (Dietz).

This species differs from *lunatus* by narrower form, coarsely and densely punctate prothorax, not being as densely pubescent, and the different markings and general color.

In specimens of *lunatus* from Florida and Texas the white antemedian spot of elytra is entirely absent and the general color is more uniform ochraceous, without any mixture of white; this gives these specimens a distinct appearance, but as no other character exists to separate them and intermediate specimens occur in the same localities, they do not deserve, in my opinion, a varietal name.

Piezocorynus tesselatus n. sp.—Blackish brown, alternate elytral interspaces tesselated with black and yellowish spots. Beak feebly arcuately emarginate at apex. Antennæ slender, dark, last joint paler at apex, first joint shorter and stouter than second, which again is stouter and about three-fourths as long as third, three to seven gradually decreasing in length, the last four joints forming a loose club, joints eight and nine of equal length, but the former narrower, joint ten transverse. Prothorax broader at base than long; carina not quite basal and feebly rounded, recurved at sides and gradually disappearing towards middle; color black, with an apical median pale spot. Elytra nearly three times as long as the thorax, striate, striæ rather closely punctate; alternate interspaces wider and slightly convex, tesselated with black and pale spots; scutellum white. Body beneath sparsely clothed with greyish pubescence. Legs black, tibiæ near base and first joint of tarsi at base pale; second and third tarsal joints scarcely wider than first. Length 6.50 mm.

Huachuca Mts., Arizona, collected by Mr. Gustav Beyer, to whom I am indebted for the single male.

According to the description, this species must be near *alternans* from South America, but the legs are differently colored and the eighth antennal joint is not four times as long as apically broad. From our North American species it will easily be recognized by the markings of the elytra and by the form of the eighth antennal joint, which is similar to that of *mœstus*. The third ventral segment is feebly convex at middle.

The males of *mixtus* have on the third ventral segment a small tubercle at middle, and the eyes are emarginate, but very feebly.

ARÆODERES n. gen.

Head flat, immersed in the thorax as far as the eyes; beak more than twice as wide as long, truncate at apex, sides straight, covering the antennal cavities; eyes convex, rounded, not oblique, truncate-emarginate in front of antennal cavities; antennal cavities transverse, occupying the whole length of the beak and close to the eyes; antennæ reaching to the hind angles of prothorax, first and second joints equal, much stouter than the others, third joint slightly smaller than fourth, fourth to eighth gradually decreasing in length, ninth to eleventh forming a loose club; false mentum broadly emarginate, lobes rounded at tip. Prothorax convex, nearly twice as wide at base than long, dorsally longer than laterally. Carina basal, feebly arcuate, extending at sides to the front angles, hind angles rectangular. Elytra convex, about twice as long as the prothorax, gradually declivous at apex, humeri rounded, apices sinuate before the sutural angles, coarsely striate-punctate. Tarsi short, second joint covering the third, claws cleft. Anterior coxæ narrowly separated, mesosternal process vertical, slightly narrower at tip and truncate.

Type.—*Aræoderes texanus* n. sp.

Judging from the description, this genus seems to be allied to *Piænia* Pascoe, and is best placed between *Euparius* (*Cratoparis*) and *Brachytarsus* of our fauna.

Acmæoderes texanus n. sp.—Brown, sparsely pubescent with luteous hairs, forming at basal third a larger patch, several smaller spots are transversely placed at about apical third and one or two at sides; the light hairs on the thorax condensed in one spot on each side near apex, one on each near basal margin and a short antescutellar line. Head coarsely punctured, sparsely clothed with luteous hairs; antennæ pale, except the ninth and tenth joints which are darker. Thorax coarsely punctate and feebly pubescent, sides slightly sinuate before the hind angles, then arcuately narrowing to apex. Elytra convex, coarsely punctate-striate, apex sinuate before the sutural angles. Body beneath sparsely pubescent, metasternum more densely than the rest; prosternum coarsely punctate; metasternum and abdomen, except last segment, very coarsely and sparsely punctate with a few finer punctures intermixed, penultimate and last abdominal segment much more finely and moderately densely punctate. Femora dark, tibiæ and tarsi pale. Length 2 25–2.5 mm.

Brownsville, Texas, July.

Brachytarsus ornatus n. sp —Black, pubescence of upper surface dark brown, cinereous and pale yellowish, the two latter colors forming on each elytron an indistinct arcuate subbasal fascia and two broken up subapical fasciæ; legs indistinctly annulate. Head not convex, on the same plane as the beak; the latter as long as the head, oblique at sides, apex truncate; eyes slightly longer than broad, emarginate behind; antennal cavities occupying the sides of the beak and close to the eyes; antennæ not quite reaching to base of thorax, first and second joints stouter than the others, equal, third to eighth decreasing in length, pale, club large, loosely jointed, black. Thorax at base as wide as long; basal carina very feebly arcuate, rectangularly recurved and extending not very far up the sides; the latter gradually narrowing to apex; surface indistinctly punctate, feebly carinate at middle, the carina extending from base nearly to middle; pubescence brown, with some paler hairs intermixed. Elytra elongate, parallel, apex sinuate before the sutural angles; disk striate, striæ feebly punctate; pubescence dense, brown, variegated with cinereous and yellowish cinereous hairs, the latter forming a subbasal, irregularly arcuate fascia, a subsutural and submarginal line and two not clearly defined, transverse, subapical fasciæ. Body beneath sparsely clothed with cinereous hairs. Femora in great part dark at middle, tibiæ slightly annulated, tarsi pale, claws feebly cleft. Length 3 mm.

Buckskin, Utah, June 15, 1904; collected by Mr. Jac. Doll.

The annulated legs will separate this from our other species, except *alternans*, from which it will be distinguished by the narrower and more elongate form, the different elytral markings and the longitudinal carina of thorax, by which it also differs from all our other species. The presence of a longitudinal, median basal carina on the thorax is an unusual character in this genus, at least in our species, but not sufficient alone to create a new genus.

The markings on the elytra are a little obscure, not clearly defined.

Brachytarsus riddelliæ n. sp.—Elongate, narrow, in form very near *variegatus*, rather densely clothed with greyish white pubescence, slightly variegated on thorax and elytra with pale ochreous pubescence. Head flat; beak feebly oblique each side, eyes lateral, antennal cavities close to the eyes; antennæ pale, club darker, first and second joints larger and stouter than the others, third to fifth equal in length, sixth and seventh each slightly shorter than the fifth, but equal to each other, eight slightly longer and a little stouter than the seventh, club loosely jointed. Thorax broader at base than long, sides gradually narrowing to apex, as usually dorsally longer than laterally; carina feebly arcuate at middle and scarcely reflexed at hind angles, surface densely pubescent with grey and yellowish grey hairs. Elytra elongate, striate, striæ feebly punctate, intervals densely and finely punctate, pubescence grey, variegated with yellowish grey, the latter forming on each elytron a not clearly defined basal spot and a few indistinct spots near suture. Body beneath not very densely clothed with white hairs. Legs testaceous, claws feebly cleft. Length 2 mm.

Tucson, Arizona, collected on *Riddellia* by Mr. E. A. Schwarz, to whom I am indebted for the specimens.

This species must be near *griseus*, but the hind angles are said to be acute and the basal ridge to extend nearly one half of the length of the thorax at sides in that species.

The color is variable, some specimens are uniformly grey, others have the yellowish grey spots on the elytra more clearly defined.

Brachytarsus nigromaculatus n. sp.—Narrow, elongate, form of *variegatus*, color reddish testaceous; antennal club and three spots on elytra black, suture at apex and sides of abdomen infuscate. Head as usual, but the beak not strongly oblique at sides. Thorax at base broader than long; sides, before the hind angles, feebly sinuate, nearly parallel to about middle, then more obliquely narrowing to apex; basal carina very feebly arcuate, not recurved at sides, hind angles rectangular. Elytra striate, striæ scarcely punctured, intervals feebly rugose, pubescent with cinereous hairs, except on the spots, where the pubescence is black, two of these are situated at base, the larger near the scutellum and the smaller at the humeri, another one is situated slightly behind middle and is large and transverse, suture narrowly black and apex along suture infuscated. Body beneath sparsely pubescent; legs pale, except apex of tibiæ, which are slightly darker, claws feebly cleft. Length 2.75 mm.

Huachuca Mts.. Arizona, July.

Readily known by the peculiar coloration.

Brachytarsus beyeri n. sp.—Robust, of nearly the same form as *tomentosus*, but much larger and with coarser pubescence, which is yellowish grey and more or less irrorated with darker spots on elytra; antennæ and legs pale, club of the latter darker. Thorax much wider at base than long, basal carina slightly arcuate, rectangularly reflexed at sides, scarcely extending along the sides, surface with sparsely placed large punctures, hidden by the dense pubescense. Elytra scarcely twice as long as the thorax, striate, striæ somewhat coarsely punctured, intervals finely and densely punctate, surface densely and rather coarsely pubescent, pubescence yellowish grey, more or less irrorated with some darker spots Body beneath densely covered with cinerous pubescence. Claws deeply cleft Length 2.75 mm.

Lower California, collected by Mr. Gustav Beyer, to whom this species is dedicated.

This species, with the form of *tomentosus* and the size of *limbatus*, is easily recognizable.

The color of the pubescence is grey or yellowish grey, more or less irrorated with slightly darker spots or entirely uniform.

SOME NORTH AMERICAN DIPTERA FROM THE SOUTH WEST.

BY E. T. CRESSON, JR.

PAPER I.

ORTALIDÆ.

(Plate VI)

The material treated of in this paper was collected by J. A. G. Rehn and H. L. Viereck chiefly in New Mexico during the summer of 1902, under the direction of the Acad. Nat. Sci., Phila.; also a few species collected in Mexico by J. F. McClendon during the summer of 1903, some remarks on whose trip may be found in Ent. News, Vol. XVII, p. 26, 1906.

Ostracocœlia mirabilis Gig-Toz.

Guadalajara, Mexico. One ♂.

Rivellia conjuncta Lw.

Guadalajara, Mexico. One ♀.

Rivellia occulta v. d. W.

Guadalajara, Mexico. One ♀.

Stenopterina mexicana Mcq.

Round Mt., Texas. Two ♂.

These agree well with Loew's description, in his monograph, of *S. cœrulescens* Lw., which is a synonym of the above; in addition they have the following distinct characters: the anterior and the lower posterior orbits pollinose; antennal base and the space between them black; a distinct black bristle on the posterior portion of cheeks; proboscis nearly black; the super alar groove of thorax rufous; a small callous before the wing in the dorso-pleural suture, yellow or rufous; the last segment of abdomen one-third longer than the penultimate; squamulæ white or cream; legs yellow; the fore coxæ yellow, silvery on the anterior surface; tarsi infuscated.

HIATUS gen. nov. (Plate VI, figs. 1, 2, 3, 4).

Long and slender flies; head longer than high; front as wide as the eye and parallel. protruding at antennæ, face not distinctly carinate; eyes nearly round; cheeks very narrow; mouth very large, drawn upwards in front, and protruding as far forwards as the front; thorax with three dorso-centrals behind the suture; first vein bristly at end; hind femora much thickened.

Head as long or longer than high, broader than high, wider than the thorax. Eyes large and nearly round. Front as broad as eyes, projecting at the antennæ, not concave, smooth; orbits parallel as far as antennæ, then narrowing; besides the usual vertical bristles are two transfrontals, otherwise bearing scattered minute hairs. Face short, excavated in profile; antennal foveæ shallow; carina acute; sides of face very narrow, overhanging the depression, the ridge minutely bristly on lower portion. Cheeks very narrow, about one-eighth to one-tenth height of eye, giving the head in profile, a flat appearance. Occiput convexed, about one-eighth length of head. Mouth very large, one-half width of head, drawn upwards in front; margin bare, excepting towards the occiput. Clypeus small. Proboscis short, thick. Palpi filiform, thickened at tip. Antennæ nearly as long as face; second joint very short; third joint rounded at apex, front corner obtuse, not sharply pointed, front edge flat, not concave; arista bare, distinctly thickened at base.

Thorax dusted whitish, elongate, nearly twice as long as wide, bearing bristles as follows: three post dorso-centrals, two post alars, one humeral, two nolapleurals, a distinct mesopleural, one propleural, very small, a series of three to five small bristles on the prothorax before the prostigma. Scutellum with four marginal bristles.

Abdomen, of *male*, hardly longer than the thorax, broadest at first and second segments; the first segment nearly twice as long as the second; the fourth as long as the first; the fifth somewhat swollen and retracted; of *female*, longer than thorax, otherwise as male; first segment of the ovipositor flat, as broad as the fifth segment; second as long as first.

Legs long; femora thickened, especially of the hind leg; prominent bristles as follows: anterior femora with a few extensors, a series of minute lateral flexors; middle tibia with a few apical flexors; hind femora with one median lateral extensor.

Wings one and one-half times as long as the thorax; costa and hind margin parallel; first vein bristly the entire length of stigma; auxilary vein distinct; stigma nearly as long as costal cell; third vein straight, parallel with fourth vein; last section of fourth vein twice as long as the preceding section; cross veins straight and perpendicular, the small cross-vein beyond the middle of the discal cell, but before the end of the first vein; anal cell not acute; wing hyaline, excepting the dark stigma and a spot at the apex of the submarginal cell.

This genus seems to be a transition between the groups Cephaliinæ and Ortalinæ. From the former it is excluded by the small proboscis and the small clypeus and the presence of propleural bristle; from the latter by its large mouth, and as that seems to be the only distinct difference, I include this genus in the group Ortalinæ. *Tephronota* seems to be its closest relative, but differs mainly by its long head, round eyes, and the mouth being distinctly drawn up in front.

Hiatus fulvipes sp. nov. (Pl. VI, figs. 1, 2, 3, 4).

In general black or brownish. Front light yellow at base of antennæ to brown at the vertex, but the ocellar region and sides of vertex black, whitish pollinose, excepting a middle vitta; two frontal besides the usual vertical bristles, otherwise covered with scattered minute hairs. Face white below, to light yellow above, with some brown under the antennæ, pollinose only on the narrow sides. Cheeks whitish, to blackish towards the occiput, which is brownish black and sparingly pollinose. Few bristles on the posterior portion of the oral margin, and a few very minute bristles on the posterior extension of the facial ridge which runs nearly to the occiput. Eyes dark brown. Antennæ of *male* brown, lighter at base, nearly as long as face; third joint four to five times as long as second, and as wide as long. Arista black, except the swollen base; the antepenultimate joint brown, longer than thick. Antennæ of *female* shorter and darker, arista darker and the third joint about one and one-half times as wide as long. Palpi yellow, nearly filiform. Proboscis brown.

Thorax black, evenly pollinose above; pleuræ brownish, more shining; the usual lateral bristles well developed, but those of the dorsum weak, 3 pair dorsocentrals, no acrosticals. Metanotum black, slightly pollinose. Scutellum flat, black, pollinose, with four bristles. Squamulæ small, brownish. Halteres brownish.

Abdomen shining brownish black. Ovipositor black, first section half again as long as the fifth abdominal segment. Legs in general yellow; fore coxæ whitish, hind femora of ♂ very much enlarged and darker, knees brown; of ♀ scarcely enlarged, not distinctly darker; the largest bristles are on the fore femora, and one lateral extensor on the hind femora, otherwise the legs are covered with minute hair-like bristles.

Wings hyaline, but with stigma, and a spot at end of second vein, brown; second vein straight; small cross-vein beyond middle of discal cell; all veins whitish or semi-hyaline towards base of wing. Length ♀, over all, 5 mm.; ♂ 3 mm.

Alamogordo, N. Mex. One ♂, one ♀. Type in Acad. Nat. Sci. Phila. collection.

Tetanops luridipennis Lw.

East Las Vegas, N. M. One ♂.

Tetanops vittifrons v. d. W.

Guadalajara, Mexico. Two ♀.

Automola rufa sp. nov. (Pl. VI, fig. 5).

Yellow to red and black; all bristles black.

Front yellow, darker at vertex, covered with minute bristles; one pair of frontals and the usual vertical bristles. Face rufous; antennal foveæ rather deep, running to oval margin, median carina wide, light yellow. Cheeks light brown, bare, except towards the oral margin and the occiput. Clypeus rufous. Antennæ rufous, third joint four times as long as the second, roundly pointed anteriorly; arista of like color about one-half again as long as third antennal joint, but slightly larger and darker at base. Eyes dark brown. Occiput convexed, bare below, except the oral margin and near the cheeks, light brown below, darker above. Palpi and proboscis rufous.

Thoracic dorsum dark brown, lightly pollinose, convexed with minute erect bristles; lateral margins and humeri yellow, shining, no acrosticals, two pair dorso-central bristles, the series of bristles on the sternopleura near the middle coxæ very conspicuous; mesopleura and sternopleura dark brown, the remainder of the pleura more rufous; metanotum black. Scutellum flat, reddish, with four bristles. Squamula brownish. Halteres whitish.

Abdomen distinctly arched, narrowly elongate, the first segment reddish and is covered with minute erect bristles, excepting a bare dorsal median cross band, and a bare pollinose posterior margin; the second and third segments blackish, also covered with minute bristles, but smaller and appressed, no bare median cross band, the posterior margins bare but not pollinose; first, second and third segments have a series of stout, erect, pre-marginal bristles; the fourth segment brown, also covered with appressed minute bristles, and the series of stout erect bristles are marginal.

Legs reddish, hind coxæ lighter; all tarsi yellow, middle tibiæ with a series of short stout bristles on the middle of the posterior side; front and hind femora armed; hind coxæ with a tooth-like projection near the joint, which is armed with long bristles, and one bristle on the lateral side; all other coxæ armed.

Wings grayish hyaline; small cross-vein beyond the middle of the discal cell; anal cell obtuse, third and fourth veins parallel. Base of wing infuscate, otherwise provided with three complete dark brown cross-bands; the first and widest passing through the stigma and base of discal cell to the posterior margin; the second arising between the ends of the first and second veins, passing through the posterior cross-vein to the posterior margin; the last arising at the end of second vein and dissolving in the second posterior cell; the rudiments of another band between the second and third bands form a broad spot in the submarginal cell and a small spot in the first posterior cell, and is cross connected to the third band in the marginal cell. Length 5½ mm.

Alamogordo, N. Mex. One ♂. Type in Acad. Nat Sci. Phila. collection.

The markings of the wings brings this species near *A. trifasciata* Wied. (according to description), but its black scutellum, gray abdomen and black legs will readily characterize it.

The markings of the wings alone will separate it from *A. automara* Wied. The figure of the wing of *A. automara* Wied. in the Biol. Cent.-Amer. shows the third vein very sinuate at the apex. This species has no indication of such.

This genus, as Loew states, "is not very well placed in the family Ortalidæ," but disregarding the presence of the unusual preapical bristles, it will fall in the subfamily Ortalinæ.

Pterocalla undulata sp. nov. Pl. VI, fig. 6).

In general, entirely grey-ochreous, pollinose, dotted and striped with coffee-brown.

Head more yellowish. Front with minute black bristles, excepting on the frontal lunule; the ocellar region brownish; one pair frontals besides the usual vertical bristles. Cheeks with numerous black bristles on the posterior portion adjoining the occiput; the occiput more whitish; the upper portion of the posterior orbits brownish. Antennæ reddish, the third joint about twice as long as wide; the arista twice as long as third joint, black. Eyes black. Palpi brown at tip. Proboscis black.

Thorax dotted with brown on the dorsum, and bearing one pair acrosticals and two pair dorso-central bristles; the pleuræ irregularly striped longitudinally. Scutellum convexed, dotted, with four bristles. Squamula blackish. Halteres whitish.

Abdomen same color as the thorax, having a transverse row of spots on the dorsum of first to third segments; the posterior margins of all segments with an irregular brown border interrupted in the middle; the medium portion especially and somewhat all the dorsum of all but the first segment minutely spotted.

Legs in general yellow; fore and hind femora somewhat brownish; two indistinct bands on the hind tibia; all tarsi light yellow.

Wings rather broader than usual, very obtusely rounded at apex; in general brown, darker at base; the posterior margin clearly hyaline only below the fifth vein, and but slightly so in the second posterior cell; two small hyaline indentations on the anterior margin, at the ends of the auxiliary and first veins; a single series of semi-hyaline spots in the first basal cell; an indistinct hyaline spot between two wrinkles in the apical portion of marginal cell opposite the end of first vein; two brown spots beyond the one eye-spot of the submarginal cell; two eye-spots in the first posterior cell. The second especially and the fourth veins very sinuate at their apical portion, the third not so much. The anal cell with a very long lobe. A very clear hyaline spot in the second posterior cell is sometimes confluent with the hyaline margin. The small cross-vein is colorless in the middle. Length 6 mm.

Guadalajara, Mex. One ♂. Type, coll. Acad. Nat. Sci. Phila.

This species approaches *P. costalis* v. d. W., but the even coloring of the wing, except where mentioned, not being reticulated with semi-hyaline spots, having only two brown spots beyond the eye-spot of the submarginal cell, the orbits not whitish, and the unspotted femora, will readily separate these two species.

Pseudotephritis cribellum Lw.

Florence, Ariz. One ♂, three ♀.

These specimens seem to agree well with Loew's description, but the spot just before the apical band of the wing does not go beyond the second vein, except possibly in a faint shadow.

In addition, these specimens have the following characters: the thorax of females have two elongated brown spots just behind the suture line; a velvety black spot on each post alar callus, at the root of scutellum, with a conspicuous series of black, posteriorly directed bristle-like hairs; the posterior margins of the second and third segments have a brown border, sometimes interrupted in the middle, and the entire lateral margins of the third segment sometimes brown.

The thorax of ♂ is similarly marked, but there seems to be no bristle-like hairs on the black post alar calloses, and the abdomen is spotted with numerous minute brown spots, but only two large spots on the posterior dorsal margin of the second segment.

The shining black spots on the scutellum of both sexes are very large and separated only by a narrow pollinose stripe, which with the stripe at the base, give the spots a right angular appearance.

These characters are not noticeable in another specimen I have, but until more material is studied I do not think it advisable to separate them.

Œdopa capito Lw.

Highrolls, New Mex. Numerous specimens, ♂ and ♀.

Parœdopa punctigera Coq. (Pl. VI, fig. 7).

Highrolls, Alamogordo, New Mexico. Numerous specimens, ♂ and ♀.

Stictomyia longicornis Biq.

Alamogordo, New Mexico. Twenty-three specimens, ♂ and ♀.

One ♀ from Guadalajara, Mexico, is larger and more distinctly marked than those from New Mexico.

This species is well figured in the Biol. Cent.-Am., Vol. II. It will fall in the subfamily Ulidiinæ, but its unusally long antennæ separates it from all others of that group.

The genera *Stictomyia* and *Parœdopa* may be separated as follows:

1. Head conspicuously large: antennæ situated as far or further apart than the length of the first two joints: cheeks and face swollen............*1a*.
Not having these characters.................................. ....*2a*
1a. Eyes round, about one-half height of head........ 2
Eyes higher than long, more than one-half the height of head. **Parœdopa** Coq.
2. Third joint of antennæ round, front smooth, not rugose......**Œdopa** Lw.
Third joint of antennæ elongate, upper part of front rugose. **Eurycephala** Roed.
2a. Antennæ much longer than face; face with two large shining callosities beneath the antennæ, not concave ....**Stictomyia** Biq.
Antennæ not longer than face; face with no callosity, flat or concave. 3 of manual.

This table is to be used in connection with that given under Ulidiinæ, page 118 of Williston's Manual of the Families and Genera of North American Diptera (2nd edition), and is numbered to correspond with it.

Acrosticta bicolor sp. nov. (Pl. VI, figs. 8, 9, 10).

Dull green and black, excepting the tibia, tarsi and the second and third abdominal segments.

Head nearly twice as wide as high, and about as long, generally black. Front broad, smooth, one and a quarter times as wide as the eye, nearly horizontal, not punctate or rugose, somewhat depressed, projecting forward at the antennæ, covered with minute hairs, dark brown near the antennæ, but black at vertex: orbits parallel, dusted with white; one pair frontal bristles. Face black or very dark brown, wide, in profile slightly excavated only in ♂, but the foveæ rather deep; pollinose beneath the antennæ; carina wide, obtuse, minutely grooved in front above the oval margin. Cheeks black, about half as wide as the eye height. Posterior orbits greenish. Occiput flat. Clypeus black, distinct, small, not projecting forwards.

Antennæ black, rather elongate; third joint about twice as long as wide, nearly half as thick as wide, rounded at apex; arista distinctly thickened at base. Proboscis black, short, robust. Palpi black at tip, nearly filiform.

Thorax dull bluish green, thickly pollinose above, slightly so on the pleura, narrower than the head, somewhat longer than wide; bearing one pair post dorso-centrals, one pair post acrosticals, two superalars, two post humerals, one humeral, one prealar, one mesopleural, one sternopleural, otherwise covered with scattered minute hairs. Scutellum shining green, convexed, pointed bearing four marginal bristles. Squamulæ snow-white. Halteres white.

Abdomen semi-shining green, excepting the scarlet posterior half of first, all of second, and anterior half of third segments elongate, as long or longer than the thorax, and about as wide, broadest at its second segment, then tapering slightly to a narrow fourth segment; the last segment of ♂ blunt and very much enlarged ventrally, and of both sexes minutely granular, giving a shining but not glossy appearance. The ventral segments brown to blackish green. First section of ovipositor shining green, flat, hairy below (the remainder wanting in this specimen)

Femora thickened, greenish brown at joints, with no prominent bristles: coxæ, tibiæ and tarsi dark brown.

Wings with costal cell and stigma brown, one large spot at the apex of marginal, and submarginal cells diffusing into the first posterior cell to the fourth vein; its posterior border perpendicular: first vein bare; third vein straight; fourth vein converging towards the third at the apex, leaving the opening about as wide as the small cross-vein, the last section twice as long as the preceding section: fifth vein extending to the margin, anal cell with a straight pointed lobe: cross-veins perpendicular, the anterior one just beyond the middle of discal cell. Length ♂, 4 mm.; ♀, 5-5½ mm.

Ysleta, Texas (Viereck and Rehn). Type coll. Acad. Nat. Sci. Phila., one ♂ and one ♀.

This species seems to be a distinct departure from the typical *Acrosticta* by its smooth front. The clypeus is distinct but not projecting. These characters alone will separate it from the other species of this genus. Loew does not refer to the minute granulation of the abdomen, which is very distinct in this species, giving it a semi glossy appearance. With more material and comparisons with others of this genus, this species may introduce a new genus. For this reason I include generic characters in the above description.

Euxesta minor sp. nov. (Pl. VI, fig. 12).

Front rufous, narrower towards antennæ, slightly projecting, flat, with few scattered minute bristles; vertex shining greenish black, as is the occellar region and each side along the orbit to the middle of front: two frontal bristles. Face more yellow, pollinose in the excavations and along the orbits. Cheeks yellow. Clypeus yellow, projecting as far as front. Occiput black above, pollinose. Antennæ rufous; third joint round, brownish on anterior edge; arista black. Palpi yellow. Proboscis brownish.

Thorax green, with coppery reflections, slightly pollinose above; bristles normal; the pleuræ like-colored. Scutellum convexed, of a metallic coppery color. Squamulæ and halteres white.

Abdomen shining, brownish, posterior margins of third and all of fourth segments yellow. First section of ovipositor brownish, as wide as fourth segment, and about two-thirds as long as the abdomen.

Legs translucent yellow, with posterior tibiæ and the apical joints of all tarsi, brownish.

Wings with a black spot at the apex of marginal cell and extending to the fourth vein; another on the stigma extending to and reaching the fourth vein; the base of costal cell brownish; third and fourth veins nearly parallel at apex; the fifth vein reaches the margin. Length 2½ mm over all.

Alamogordo, New Mex. Two ♀. Type. coll. Acad. Nat. Sci. Phila.

The small size of this species is very noticeable. It approaches *E. spoliata* Lw., but the tibiæ are not so dark, and the stigmatic spot extends distinctly to the fourth vein. The metallic coloring may not be reliable, but the coppery scutellums of these specimens are very vivid. The coloring of the feet will separate this from *pusio* Lw., *notata* Wied. and *costalis* Fab.; its yellow face and entirely yellow legs will separate it from *apicalis* Will.

Euxesta notata Wied.

Alamogordo, New Mex. One ♂.

Euxesta pulchella sp. nov. (Pl. VI, fig. 11).

Head entirely black, but front somewhat dark brownish, not projecting much beyond the eyes at the antennæ, orbits parallel, with a pollinose spot on each about midway between vertex and antennæ, otherwise shining; two frontal bristles; vertex greenish black. Face shining, of a bluish color, pollinose about the antennæ base and along the brownish orbits. Clypeus projecting about as far as the front. Cheeks shining. Palpi and proboscis black. Occiput slightly pollinose. Antennæ dark brownish; third joint rounded, slightly longer than wide; arista bare, black.

Thorax green, dorsum pollinose; pleura shining; bristles normal. Scutellum shining green, convexed, pointed. Squamulæ white. Halteres cream colored.

Abdomen shining; first segment green; second and third bright metallic copper color; the fourth and fifth entirely chrome-yellow, with the lateral angles and venter tinged with copper. First section of ovipositor brownish yellow, as long as the last two segments and one-half as wide as the abdomen.

Legs mostly black; hind metatarsi yellow; the remaining tarsi and those of the others, brownish.

Wings with a large apical spot including the apices of the marginal and submarginal cells and diffusing into the first posterior cell; stigma black and costal cell entirely brownish; third and fourth veins converging towards apex. Length 2½ mm.

Alamogordo, New Mex. One ♀. Type, coll. Acad. Nat. Sci. Phila.

A very striking species. Closely allied to *E. notata* Wied., from which it differs in its smaller size, nearly one half as long, in the coppery second and third, and the entire fourth segments. The front is more black, hardly a distinguishable brown.

Euxesta stigmatias Lw.

Guadalajara, Mex. One ♀.

Chætopsis ænea Wied.

Highrolls, New Mex. One ♀.

I will also note here two ♀ specimens of *Epiplatea erosa* Lw. from Costa Rica, which have the third antennal joint brown, not "nearly black;" abdomen black, with deep pure blue reflections, very bristly along the margin of segments; legs dark, excepting the more yellowish tarsi.

EXPLANATION OF PLATE VI.

Fig. 1. *Hiatus fulvipes*, ♂, lateral view.
" 2. " " ♀, " "
" 3. " " wing.
" 4. " " hind femur of ♂.
" 5. *Automola rufa*, wing.
" 6. *Pterocalla undulata*, wing.
" 7. *Paroedopa punctigera*, wing.
" 8. *Acrosticta bicolor*, wing.
" 9. " " lateral view of head of ♀.
" 10. " " front view of head of ♀.
" 11. *Euxesta pulchella*, wing.
" 12. " *minor*, wing.

THE BEES OF NEW MEXICO.

BY T. D. A. COCKERELL.

More species of bees are known from New Mexico than from any other State or Territory. This is not to be explained merely as the result of diligent collecting,—indeed the work done does not nearly cover the ground, and whole regions, and doubtless dozens of species, remain unknown. The vast area—difficult to appreciate unless one has travelled over it—and the combination of desert, mountain and valley afford such a variety of conditions that we have in fact not one fauna, but several; and any statements about New Mexico, without further details, become comparatively meaningless. If proof is wanted, that in spite of all that has been done, abundant riches remain, it is afforded by the results of the Academy of Natural Sciences expedition to Alamogordo and the Sacramento Mountains several years ago. I went over most of the bees collected by Mr. Viereck, when he visited me at Las Vegas, and was interested to see many new species, even several of the genus *Perdita*, which had been my especial study. Unfortunately, much of this material still remains undescribed or unreported, and I am unable to incorporate all the important data it would afford. There is no doubt that bees, from the number of species, the ease with which they are collected, and the restricted distribution of many, afford excellent material for defining zoological regions and life zones. That they have not been used to any extent for such purposes must be explained by the inadequacy of existing collections and records, and especially the difficulty of determining the species. The difficulties of determination are not especially the fault of those who have described these insects, but necessarily result from the extraordinary wealth of still undescribed species. An insect may appear to be so and-so, but it is necessary to examine it with great care, as it may present some peculiarity, in some part of its anatomy, showing it to be a hitherto unknown form. Thus it will not be safe to trust to superficial appearances until the fauna has been much more thoroughly worked up.

In the following enumeration of New Mexico bees, I have divided the species of each genus into groups according to their zonal distribution. It is hoped that this method may be of service to those who are working on the distribution of bees, while of course all subsequent studies concerned with the same species will tend to establish or disprove the validity of my groupings. It will be noted that while the majority of the species are characteristic of particular zones, or are at least especially austral or boreal, a few range widely through many zones.

I have not given all the details of dates and flower-records, etc., most of which have already appeared in connection with the descriptions and records of the species in various publications.*

The following abbreviations are used :

Localities: M. V. = Mesilla Valley; L. V. = Las Vegas; L. V. H. S. = Las Vegas Hot Springs; S. F. = Santa Fé.

Collectors: C. = T. D. A. Cockerell; W. P. C. = Wilmatte Porter Cockerell; V. = H. L. Viereck.

Particulars concerning the localities will be found in Proc. Davenport Acad. Sci., IX, pp. 8–14.

An asterisk following the name of a locality signifies that it is the type locality of the species or subspecies.

PROSOPIS Fabr.

Hudsonian to Canadian.

P. **basalis** Smith. Top of Las Vegas Range (11,000 ft.); Beulah.

P. **varifrons** Cress. Top of Las Vegas Range; Beulah; Dailey Canon.

Canadian Zone.

P. **antennata** Cress. Beulah, prox. 8000 ft. Fls. *Roripa.*

P **rudbeckiæ ruidosensis** Ckll. Beulah; Rio Ruidoso. Fls. *Scrophularia.*

P. **tridens** Ckll. Beulah. Typ. loc. in Colo., at 7000 ft.

P. **rugosula** Ckll. Beulah. Typ. loc. in Colo., at 9500 ft. Fls. *Roripa.*

P. **digitata** Ckll. Beulah. Typ. loc. in Colo.

P. **nucleolus** Vier. Beulah.* Fls. *Salix.*

P. **ænigma** Vier. Beulah.*

P **clandestina** Vier. Beulah.*

P. **citrinifrons** Ckll. Beulah. Typ. loc. in Colo., at 8500 ft.

P. **wootoni** Ckll. Beulah; Rio Ruidoso. Fls. *Scrophularia.*

P. **tuertonis** Ckll. Tuerto Mtn., near S. F., 8550 ft.*; also Florissant, Colo. (Rohwer.) This is the species cited without name in *Entomologist*, 1898. p. 217 (♀).

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* See especially Tables for the Determination of New Mexico Bees, in Bull. Sci. Lab. Denison University, Vol. XI (1898).

Canadian and Transition.

P tridentula Ckll. Beulah; Mescalero; Rio Ruidoso. Typ. loc. in Colo., at 9500 ft.

Transition Zone.

P. rudbeckiæ Ckll. and Casad. S. F. (7000 ft.)

Upper Sonoran Zone.

P. divergens Ckll. Pecos. Typ. loc. in Colo., at 7000 ft.
P. asinina bigeloviæ Ckll. Albuquerque.

Upper to Middle Sonoran.

P. mesillæ Ckll. M. V., L. V., Pecos. Extends to Phoenix, Ariz. (Lower Sonoran.)
P. asinina Ckll. and Casad. M. V., Pecos.

COLLETES Latr.

The new records, of which details are given, are derived from a small series kindly identified by Mr. Swenk.

Hudsonian to Canadian.

C. nigrifrons Titus. Top of Las Vegas Range; Crew's Mesa; Beulah (B. Chapman).
C. oromontis Vier. Top of Las Vegas Range, June 28th, ♀ (C.); Beulah.[1]

Canadian Zone.

C. bigeloviæ Ckll. Beulah; Sacramento Mts.[1]
C. brevispinosus Vier. Beulah.[2] Mr. Swenk believes that *bigeloviæ* and *brevispinosus* ought not to be separated from *armatus*.
C. kincaidii Ckll. Rio Ruidoso.
C spurcus Vier. Beulah ; Dailey Canon, Aug. 10th (T. and W. Ckll.).
C. delodontus Vier. Beulah.[1] Fls. *Roripa*.
C. paniscus Vier. Beulah.[4]
C. zonatus Vier. Beulah.[3] Fls. *Prunus*.

Canadian to Upper Sonoran.

C. simulans Cress. Beulah (M. D. Ckll.); Embudo. Mr. Viereck states that Cresson's *simulans* included two species, one with, the other without, dark hairs on the thorax above. He considers the latter the true type, though I took the former for such in my table in *Psyche*, October, 1905. Mr. Swenk writes that he now believes that the insect be recorded as *simulans* from Olympia, Wash., was only a small *kincaidii*; he also holds that my *C. andrewsi* is the ♀ of true *simulans*, of which he has both sexes from Sioux Co., Nebraska.
C. skinneri Vier. Beulah*; Pecos, Aug. 31st (C.).

Canadian to Middle Sonoran.

C. armata Patton. Beulah (C., W. P. C.); Sapello Canon, Aug. 31st (W. P. C.); San Ignacio, Sept. 1st (T. and W. Ckll.); Albuquerque; M. V. The identifications of Canadian and Transition Zone material are by Mr. Swenk, and probably refer to the segregated forms cited above as *bigeloviæ* and *brevispinosus*

Transition Zone.

C. chamæsarachæ Ckll. S. F. Fls. *Chamæsaracha.*

C. aberrans Ckll. S. F.* Mr. Swenk has found this a common visitor of *Petalostemon* on the Nebraska sand hills.

Transition to Upper Sonoran.

C. gilensis Ckll. Gila River*; Gallinas River; Sacramento Mts.; Pecos; L. V., Aug. 9, fls. *Melilotus alba*, ♀ (W. P. C.), Aug. 11th, fls. *Solidago canadensis* (W. P. C.).

Transition to Middle Sonoran.

C. utilis Ckll. High Rolls (V.); M. V.

C. americana Cress. S. F.; Gila River; Tuerto Mtn.; Embudo; Watrous; L. V.; M. V.

Upper Sonoran.

C. wilmattæ Ckll. Pecos. Mr. Swenk has taken this in Nebraska, and finds it an oligotropic visitor of *Petalostemon.*

C. robustus Swenk. L. V., July 21, ♀, fls. *Petalostemon oligophyllus* (C.). Aug. 11, ♀, fls. *Solidago canadensis* (W. P. C.). Mr. Swenk now holds that this is identical with *C. robertsonii* D. T.

C. tegularis Swenk. Albuquerque, Aug., 1894, ♀ (Snow). fide Swenk.

C. wootoni Ckl. Rio Ruidoso, 6400 ft.*; Riley's Ranch. Organ Mts., Aug. 29. fls. *Lippia wrightii*, ♂ (C.); M. V.

Middle Sonoran.

C. crucis Ckll. M. V.

C. dalese Ckll. M. V.*

C. texana Cress. M. V. Fls. *Salix.*

C. prosopidis Ckll. M. V Fls. *Prosopis.*

C. salicicola Ckll. M. V. Fls. *Salix.*

C. annæ Ckll. M. V.*

C. louisæ Ckll. M. V.

C. gypsicolens Ckll. White Sands.*

C. algarobiæ Ckll. M. V.* Fls. *Prosopis.*

CAUPOLICANA Spinola.

C. yarrowi Cress. Albuquerque (Snow, 1894); El Rito; Organ Mts.

SPHECODES Latr.

Canadian Zone.

S. fragariæ Ckll. Beulah.*

Transition Zone.

S. asclepiadis Ckll. S. F.

Upper Sonoran Zone.

S. veganus Ckll. L. V.
S. arroyanus Ckll. L. V. (Arroyo Pecos).
S. pecosensis Ckll. Pecos.

Upper and Middle Sonoran.

S. mandibularis Cress. Mescalero; M. V.

Middle Sonoran.

S. semicoloratus Ckll. M. V.
S. fortior Ckll. M. V.
S. sophiæ Ckll. M. V.
S. perlustrans Ckll. M. V.

PROTERANER Robt.

P. rhois Ckll. Rio Ruidoso.

SPHECODOGASTRA Ashm.

S. texana Cress. M. V.

HALICTUS Latr.

Hudsonian Zone.

H. virgatellus Ckll. Top of Las Vegas Range.
H. dasiphoræ Ckll. Top of Las Vegas Range.
H. veganus Ckll. Top of Las Vegas Range.
H. peraltus Ckll. Top of Las Vegas Range.

Hudsonian to Canadian.

H. hemimelas Ckll. Top of Las Vegas Range; Cloudcroft (V.).

Canadian Zone.

H. aquilæ Ckll. Harvey's Ranch (9600 ft.); White Mts. ; Beulah.
H. similis Smith. Dailey Canon.
H. parallelus Say. Beulah.
H. niger Vier. Beulah.

Canadian to Transition.

H. lerouxii Lep. Beulah; L. V. H. S.
H. semicæruleus Ckll. Cloudcroft (V.). S. F.

Canadian to Upper Sonoran.

H. trizonatus Cress. Beulah; Rio Ruidoso; Trout Spring; Bernalillo; Paraje; Pecos; Johnson Park, July 4, fls. *Rosa* (Anna Gohrman). This is what has been previously reported as *coriaceus* Sm.; Mr. Crawford states that it is distinct from the true *coriaceus* of the E. States.

Canadian to Middle Sonoran.

H. bardus Cress. Beulah; Organ Mts.; M. V.
H. sisymbrii Ckll. Beulah; S. F.; L. V.; Watrons; M. V.*
H. ruidosensis Ckll. Beulah; S. F.; Rio Ruidoso*; Mescalero; Pecos; M. V.; Alamogordo (V.).

Transition.

H. pecosensis Crawf. Pecos Canon, 7200 ft. Fls. *Holodiscus.**

Transition to Upper Sonoran.

H. ovaliceps Ckll. S. F. ; Pecos.
H. tripartitus Ckll. S. F. ; Organ Mts.
H. perdifficilis Ckll. S. F. ; Mescalero; Placita; Pecos.

Transition to Middle Sonoran.

H cockerelli Crawf. S. F. ; Mesilla.
H. armaticeps Cress. S. F.; L. V.; Mescalero; M. V.; Raton.
H. pectoraloides Ckll. S. F.: Roswell; M. V.*
H. subobscurus Ckll. S. F.: M. V.*

Upper Sonoran.

H. forbesi Rob. Mescalero.
H. galpinsiæ Ckll. Pecos*; L. V.
H. clematisellus Ckll. Pecos.

Upper to Middle Sonoran.

H. amicus Ckll. Gila River; Organ Mts.; M. V.*
H. tripartitus meliloti Ckll. Mescalero; M. V. Extends to Phoenix, Ariz. (Lower Sonoran.)
H. pruinosiformis Crawf. Pecos; L. V.; M. V. This has been referred in error to *pruinosus* Rob.
H. mesillensis Ckll. L. V., M. V.

Middle Sonoran.

H. angustior Ckll. M. V.*
H. pseudotegularis Ckll. M. V. Type locality in tropical Mexico, and Mr. Crawford has it from Costa Rica.
H. oleosus Ckll. M. V.*
H. semibrunneus Ckll. M. V.*
H. ashmeadi Rob. M. V.

DIALICTUS Rob.

Upper Sonoran.

D. occidentalis Crawf. L. V.*
D. theodori Craw. L. V.*

CONANTHALICTUS Ckll.

C. conanthi Ckll. M. V.

Mr. Crawford has sent me an allied species of this genus from Cotulla, Texas.

HEMIHALICTUS Ckll.

H. lustrans Ckll. L. V., Lone Mtn.

AUGOCHLORA Smith.

A. neglectula Ckll. M. V., Organ Mts.
A. confusa Rob. Trout Spring.
A. confusa coloradensis Titus. Mesilla Park (M. D. Ckll. ; Roswell.

AGAPOSTEMON Smith.

Transition to Middle Sonoran.

A. texanus Cress. S. F.; Mescalero; Gila R.; Romersville; L. V.; Embudo: Gallinas R. at Las Valles; Pecos; M. V.; Organ Mts.

Upper Sonoran.

A. viridulus Fabr. La Cueva, Organ Mts.

Middle Sonoran.

A. melliventris Cress. Vega S. José; Rincon; M. V.
A. radiatus Say. M. V.
A. cockerelli Crawf. M. V.*

ANDRENA Fabr.

Hudsonian Zone.

A. merriami Ckll. Top of Las Vegas Range.*

Hudsonian to Canadian.

A. birtwelli Ckll. Top of Las Vegas Range; Beulah, fls. *Heracleum.* In Colorado this has been taken at a much lower altitude (Colorado Springs, 6000 ft.).

Hudsonian to Transition.

A. apacheorum Ckll. Top of Las Vegas Range; Beulah; Mescalero; Sacramento Mts.*

Canadian Zone.

A. sapellonis Ckll. Beulah, fls. *Thlaspi.**
A. carlini Ckll. Beulah. Typ. loc. in Illinois.
A. pacta Vier. Beulah.*
A. grandior Ckll. Beulah.
A. segregans Ckll. Beulah.*
A. atala Vier. Beulah.* Visits *Polemonium* at Florissant, Colorado.
A. delta Vier. Beulah.*
A. barberi Ckll. Rio Ruidoso.*

A. chromotricha Ckll. Rio Ruidoso.

A. chromotricha beulahensis Vier. Beulah. Mr. Viereck now holds that his *A. beulahensis* is a variety of *chromotricha.*

A. chromotricha clypeonitens Ckll. Beulah. Mr. Viereck considers that his *A. truncata* is identical with *clypeonitens* (described from Wisconsin), and believes that the latter is a variety of *chromotricha.*

A. occidentalis Ckll. Beulah; Santa Fé Canon. This was described as a variety of *platyparia* Rob. (*fragilis* Smith), and was later even considerd doubtful as a variety. Upon comparison with a male *platyparia* from Milwaukee, received from Dr. Graenicher, I find that *occidentalis* is apparently a distinct species: known by its larger head, with the eyes diverging below, and the sides of the vertex (viewed from in front) presenting a more distinct angle.

Canadian to Transition.

A. hirticincta Prov. Beulah; San Ignacio.

Canadian to Upper Sonoran.

A. argemonis Ckll. Beulah; S. F.+; Rio Ruidoso; Las Valles; San Germino; Pecos; Glorieta, fls. *Argemone intermedia;* L. V.; Beatty's Cabin (W. P. C.).

A. helianthi Rob. Beulah (var. ♂, with hair of thorax bright ferruginous); Rociada; Pecos: L. V.; Albuquerque.

Transition.

A. cerasifolii Ckll. S. F.

A. johnsoniana Ckll. Johnson Mesa.

A. xanthigera Ckll. San Ignacio.

A. canadensis D. T. (*simulata* Prov.) San Ignacio. The record relates to *A. alborirgata* Ckll., which Mr. Viereck says he cannot separate from *simulata.*

A. nitidior Ckll. San Ignacio.

A. semirufa Ckll. L. V. H. S.

A. erythrogastra Ashm. Placita. Typ. loc. in Colorado.

A. pluvialis Ckll. Placita. Typ. loc. Olympia, Wash.

Transition to Upper Sonoran.

A. placitæ Ckll. Placita+: L. V.

A. cratægi Rob. L. V. H. S. (a variety); Pecos (det. Viereck).

A. cressoni kansensis Ckll. Placita; Las Valles; both localities are on the Gallinas River.

A. aureocincta Ckll. S. F.+; Glorieta, fls. *Gutierrezia sarothra*, Aug. 23, ♂ (W. P. C.); Pecos, Sept.; San Ignacio.

A. mentzeliæ Ckll. S. F.+; Pecos.

A. porteræ Ckll. L. V. H. S.,+ and down the Gallinas R. well into the Upper Austral.

Transition to Middle Sonoran

A. mimetica Ckll. Placita ; Alamogordo, May 26–29 (V.).

A. prunorum Ckll. S. F.; Las Valles; Pecos; Paraje; Johnson Park, July 4, fls. *Rosa* (Anna Gohrman); M. V.+

Upper Sonoran.

A. **aliciarum** Ckll. Organ Mts.
A. **vulpicolor** Ckll. Embudo.
A. **prunifloris** Ckll. Paraje. The locality of this and the next is almost Middle Sonoran.
A. **subaustralis** Ckll. Paraje. Mr. Viereck has recorded this species from Oregon, Washington and Vancouver Island, a most unexpected range!

Upper to Middlè Sonoran.

A. **sphecodina** Casad. & Ckll. Paraje; M. V. This scarcely enters the Upper Sonoran, Paraje being on the border of the Middle Sonoran.
A. **mellea** Cress. L. V.; Pecos, June 26; Glorieta, fls. *Argemone intermedia*. Aug. 23, ♀; Alamogordo (V.). This is more especially an Upper Sonoran form.
A **salicinella** Ckll. Las Valles; Paraje; M. V. North to Boulder, Colo.

Middle Sonoran.

A. **mesillæ** Ckll. M. V.
A. **prima** Casad. M. V.
A. **jessicæ** Ckll. M. V.*
A. **casadæ** Ckll. M. V.
A. **nigerrima** Casad. M. V.
A. **pulchella** Rob. M. V.
A **capricornis** Casad. and Ckll. M. V.
A. **primulifrons** Casad. M. V.*
A. **fracta** Casad. and Ckll. M. V.*
A. **electrica** Casad. and Ckll. M. V.
A. **monilicornis** Ckll. M. V.*

CALLANDRENA Ckll.

C. **pectidis** Ckll. M. V.*; flies in September, fls. *Pectis*.

PARANDRENA Rob.

P. **andrenoides** Cress. Gallinas River; Paraje; M. V.

HESPERAPIS Ckll.

Middle Sonoran.

H. **oliviæ** Ckll. M. V.*; flies in September, fls. *Pectis*.
H. **rhodocerata** Ckll. M. V. ; flies in September, fls. *Pectis* and *Verbesina*.
H. **elegantula** Ckll. M. V.*; flies in April.
H. n. sp. Vier. Alamogordo (V.); Mesilla Park, May 16. Fls. *Larrea* (C.).

PROTOXÆA Ckll. and Porter.

P. **gloriosa** Fox. M. V.*

NOMIA Latr.

I omit the two species described from the "Santa Fé district" by Cameron, as they are doubtless Mexican. I also omit the *Oxæa* and *Osmia* from the same collection.

Transition to Middle Sonoran.

N. foxii D. T. S. F.; Rincon; M. V.; Vega S. José. Typ. loc. Denver, Colo.

Upper and Middle Sonoran.

N. nevadensis Cress. Albuquerque; La Luz; M. V.
N. triangulifera Vachal. Albuquerque; M. V., flies in Sept., fls. *Helianthus*.
N. nortoni Cress. L. V.; Roswell. This and *foxii* seem not to occupy the same ground, *foxii* being more western.

DIEUNOMIA Ckll.

D. apacha Cress. "New Mexico."
D. marginipennis Cress. "New Mexico"
D. xerophila Ckll. Aztec; M. V., flies in Sept., fls. *Verbesina*.
D. mesillæ Ckll. M. V., flies in July.

PROTANDRENA Ckll.

Transition to Upper Sonoran.

P. asclepiadis Ckll. S. F. : Albuquerque.

Upper Sonoran.

P. trifoliata Ckll. Albuquerque.

Middle Sonoran.

P. mexicanorum Ckll. M. V.
P. heteromorpha Ckll. M. V.

HALICTOIDES Nyl.

Hudsonian Zone.

H. maurus Cress. Top of Las Vegas Range.

Canadian Zone.

H. harveyi Ckll. Harvey's Ranch, Las Vegas Mts.
H. oryx Vier. Beulah.

Canadian to Middle Sonoran.

H. marginatus Cress. Beulah; S. F.; Rinconada; M. V.

Upper Sonoran.

H. tinsleyi Ckll. Organ Mts.

Middle Sonoran.

H. fallugiæ Ckll. M. V., end of April, fls. *Fallugia*.

PSEUDOPANURGUS Ckll.

P. pectidellus Ckll. Organ Mts., in Aug., fls. *Pectis*, in company with *Perdita solitaria*.
P. æthiops Cress. Albuquerque; M. V. Fls. *Helianthus*.
P. fraterculus Ckll. Albuquerque; M. V. Fls. *Isocoma*.

PANURGINUS Nyl.

Hudsonian to Canadian.

P. verus Ckll. Top of Las Vegas Range ; Crew's Mesa; Beulah.
P. bakeri Ckll. Top of Las Vegas Range; Beulah.
P. cressoniellus Ckll. Top of Las Vegas Range; Beulah.

Canadian Zone.

P. porteræ Ckll Beulah.
P. atricornis Cress. Beulah.
P. nigrinus Vier. Beulah.
P. citrinifrons Vier. Beulah.
P. neomexicanus Ckll. Rio Ruidoso.

Transition Zone.

P. albitarsis Cress. S. F. Fls. *Rudbeckia.*

Transition to Upper Sonoran.

P. boylei Ckll. S. F., L. V. Fls. *Cleome.*
P. pauper flavotincta Ckll. S. F., L. V., Organ Mts.
P. innuptus Ckll. Mescalero. This locality is on the border of the Transition and Upper Sonoran.
P. barberi Ckll. Mescalero.

Upper Sonoran.

P. townsendi Ckll. Organ Mts.*
P. hirsutifrons Ckll. Albuquerque.*

Middle Sonoran.

P. renimaculatus Ckll. M. V. Typ. loc. in Colo., fls. *Solidago.*
P. perlævis Ckll. M. V.

SPINOLIELLA Ashm.

S. scitula Cress. S. F.; L. V.
S. australior Ckll. Albuquerque*; M. V.
S. meliloti Ckll. M. V. Fls. *Melilotus.*

CALLIOPSIS Smith.

Transition.

C. rhodophilus Ckll. S. F.

Transition to Upper Sonoran.

C. coloradensis Cress. S. F.; L. V.; Embudo; Organ Mts.; Glorieta. fls. *Gutierrezia sarothræ,* Aug. 23 (W. P. C.).

Upper Sonoran.

C. lepidus Cress. L. V.
C. teucrii Ckll. L. V.
C. verbenæ Ckll. and Porter. L. V. : Pecos, July 7, fls. *Verbena bipinnatifida.*
C. chlorops Ckll. L. V. ; Pecos.

Middle Sonoran.

C. coloratipes Ckll. M. V. Extends to Phoenix, Ariz. (Lower Sonoran). Fls. *Isocoma.*

HYPOMACROTERA Ckll. and Porter.

Upper Sonoran.

H. callops Ckll. and Porter. L. V. , in August, fls. *Chamæsaracha*

Middle Sonoran.

H. semirufa Ckll. M. V.
H. subalpina Ckll. M. V.

MACROTEROPSIS Ashm.

M. latior Ckll. M. V.

PERDITA Smith.

Canadian to Upper Sonoran.

P. zebrata Cress. Beulah (very rare); Gallinas River; S. F.; L. V.; Pecos; Glorieta, Aug. 23, fls *Cleome*: Albuquerque: Lamy; Watrous; Alma, Socorro County.

Transition.

P. foxi Ckll. S. F.
P. snowi Ckll. S. F.

Transition to Upper Sonoran.

P. chamæsarachæ Ckll. S. F.; L. V.: Albuquerque ; Roswell.
P. sexmaculata Ckll. S. F. ; L. V.: Roswell. Fls. *Chamæsaracha.*
P. sphæralceæ alticola Ckll. S. F. ; Pecos. The mut. *suffusa* Ckll. has the same range.
P. mentzeliæ Ckll. S. F. ; Pecos; near Tularosa (Wooton); Raton. At Pecos it visits the flowers of *Nuttallia rusbyi* (*Mentzelia rusbyi* Wooton, 1898).
P. lepachidis Ckll. S. F. : Socorro.

Upper Sonoran.

P. stottleri Ckll. Sacramento Mts. ; Pecos, fls. *Gutierrezia.*
P. phaceliæ Ckll. Organ Mts.
P. anogræ Ckll. L. V.
P. mentzeliarum Ckll. Organ Mts. ; near Tularosa (Wooton).
P. mentzeliarum lauta Ckll. Near Tularosa (Wooton). Three species of *Perdita* were taken by Wooton at flowers of a *Nuttallia* doubtfully referred at the time to "*wrightii* or *multiflora*," but no doubt really *Nuttallia perennis* (*Mentzelia perennis* Wooton. 1898).

P. crotonis Ckll. La Tenaja; between Rowe and Old Pecos Pueblo, fls. *Croton*, Sept. 4 (W. P. C).; Albuquerque.
P. gutierreziæ Ckll. Albuquerque.
P. albipennis Cress. Albuquerque.
P. affinis Cress. Embudo; Pecos. Aug. 24, fls. *Grindelia inornata*, ♂, ♀ (W. P. C.); Glorieta, Aug. 23, fls. *Chrysopsis villosa*, ♂, ♀ (W. P. C.).
P. wootonæ Ckll. Near Tularosa
P. rhodura Ckll. Embudo.
P. subfasciata Ckll. Embudo.
P. solitaria Ckll Organ Mts.
P. chrysophila Ckll. Pecos*; Organ Mts.

Upper to Middle Sonoran.

P. grandiceps Ckll. Organ Mts.; M. V. ; Alamogordo (V.)
P. pulchrior Ckll. Albuquerque ; M. V.
P. sphæralceæ Ckll. Organ Mts.: M. V. ; Alamogordo (V.
P. pallidior Ckll. Albuquerque ; M. V.
P. crassiceps Ckll. Albuquerque : M. V.
P. bigeloviæ Ckll. Albuquerque : M. V.
P. townsendi Ckll. Embudo; White Sands.
P. albovittata Ckll. Organ Mts. ; M. V.
P. austini Ckll. Albuquerque* ; M. V.

Middle Sonoran.

P. beata Ckll. M. V.
P. luteola Ckll. M. V.
P. larreæ Ckll. San Marcial.*
P. larreæ modesta Ckll. M. V.
P. marcialis Ckll. San Marcial*; Alamogordo (V.).
P. punctosignata Ckll. M. V. Extends to S. José de Guaymas, Mex. (Lower Sonoran).
P. maculigera Ckll. M. V.
P. semicrocea Ckll. M. V.*
P. sidæ Ckll M. V.*
P. cladothricis Ckll. M. V.
P. æneifrons Ckll. M. V.*
P. semicærulea Ckll. San Marcial*; Alamogordo (V.).
P. phymatæ Ckll. M. V.*
P. pellucida Ckll. M. V.*
P. pectidis Ckll. M. V.*
P. perpulchra Ckll. M. V.*
P. biparticeps Ckll. M. V.*
P. erigeronis Ckll. M. V.*
P. hirsuta Ckll. M. V.*
P. maculipes Ckll. M. V.*
P. martini Ckll. M. V.*
P. salicis Ckll. M. V.* Extends to S. José de Guaymas, Mex. (Lower Sonoran).
P. nitidella Ckll. M. V.*

P. exclamans Ckll. M. V.* Extends to S. José de Guaymas, Mexico (Lower Sonoran).
P. senecionis Ckll. M. V.*
P. verbesinæ Ckll. M. V.*; with mutations *nigrior* Ckll., *intermedia* Ckll., *maculata* Ckll. and *cyanella* Ckll.
P. asteris Ckll. M. V.* Extends to Salt River Valley, Ariz. (Lower Sonoran).
P. larrearum Ckll. San Marcial.*
P. vagans Ckll. M. V.*
P. vespertilio Ckll. M. V.*
P. chrysoceras Ckll. M. V.*
P. ignota Ckll. M. V.*
P. fallax Ckll. M. V.*
P. albipennis helianthi Ckll. M. V.*
P. callicerata Ckll. M. V.*
P. numerata Ckll. M. V.*
P. laticeps Ckll. M. V.*
P. tarda Ckll. M. V.* Extends, in modified form, to S. José de Guaymas, Mex. (Lower Sonoran).
P. howardi Ckll. Alamogordo (V.). Typ. loc. San José de Guaymas, Mexico (Lower Sonoran).
P. n. sp. Vier. Alamogordo, at *Dasylirion* (V.).

Locality Unknown.

P. nuda Ckll. "New Mexico."*

NOMADA Fabr.

Canadian Zone.

N. zebrata Cress. Beulah; Eagle Creek, White Mts.
N. beulahensis Ckll. Beulah.*
N. aquilarum Ckll. Eagle Creek, White Mts.*
N. schwarzi contractula Ckll. Beulah.*
N. ruidosensis Ckll. Rio Ruidoso.*

Canadian to Upper Sonoran.

N. taraxacella Ckll. Near Viveash Ranch, 8800 ft.; Pecos; Placita.*

Transition to Upper Sonoran.

N. vegana Ckll. S. F.; L. V.*

Upper Sonoran.

N. xanthophila Ckll. L. V.*
N. fragilis Cress. Pecos, fls. *Salix*.
N. placitensis Ckll. Placita,* fls. *Prunus*.
N. lippiæ Ckll. La Cueva, Organ Mts.* Visits *Lippia*.
N. pecosensis Ckll. Pecos.*
N. vallesina Ckll. Las Valles.*

Middle Sonoran.

N. martinella Ckll. M. V.*
N. crucis Ckll. M. V.* Visits *Verbesina.*
N. pennigera Ckll. M. V.*
N. sidæfloris Ckll. M. V.*
N. gutierreziæ Ckll. M. V.*
N. vierecki Ckll. M. V. Visits *Aster* and *Dithyræa.* Type loc. Juarez, Mexico (Middle Sonoran).
N. neomexicana Ckll. Rincon; Deming.* Visits *Verbesina* and *Prosopis.*
N. sophiarum Ckll. M. V.* Visits *Sophia.*

NEOLARRA Ashm.

N. pruinosa Ashm. Glorieta, Aug. 23; M. V. Type loc. West Cliff, Colorado, 7840 ft.
N. verbesinæ Ckll. M. V.*

PHILEREMULUS Ckll.

P. vigilans Ckll. M. V.*
P. nanus Ckll. S. F.*; L. V.

NEOPASITES Ashm.

N. pulchellus Cress. S. F. Type from Colorado; I took it at Colorado Springs, June 20, 1906.

DIOXYS Lep.

D. productus subruber Ckll. M. V.*
D. martii Ckll. Picacho Mtn., M. V.*, March 25, fls. *Sphæralcea martii.*

PHILEREMUS Latr.

P. americanus Cress. Beulah. Type from Canada.
P. mesillæ Ckll. M. V.*

EPEOLUS Latr.

E. beulahensis Ckll. Beulah.*
E. crucis Ckll. M. V.*

TRIEPEOLUS Rob.

Canadian to Upper Sonoran.

T. occidentalis Cress. Beulah (? was *fraseræ*); Mescalero. Type from Colo.
T. cressoni fraseræ Ckll. Beulah*; L. V.

Transition to Upper Sonoran.

T. cressoni Rob. San Ignacio; L. V.
T. helianthi Rob. Near San Ignacio; Aztec.

Transition to Middle Sonoran.

T. segregatus Ckll. S. F.; L. V. H. S.*; L. V.; Albuquerque (? was *isocomæ*); M. V.

Upper Sonoran.

T. martini Ckll. Romeroville.*
T. nevadensis Cress. Albuquerque. Type from Nevada.
T. isocomæ Ckll. Albuquerque.*

Upper to Middle Sonoran.

T. lunatus Say. Organ Mts.: M. V.

Middle Sonoran.

T. verbesinæ Ckll. M. V.: Deming.
T. texanus Cress. M. V. Type from Texas.
T. texanus nigripes Ckll. M. V.
T. mesillæ Ckll. M. V.*

Locality Unknown.

T. robustus Cress. "New Mexico."*
T. concavus Cress. "New Mexico."*

ERICROCIS Cress.

E. lata Cress. M. V. Type from Texas.

MELECTA Latr.

M. miranda Fox. S. F.; L. V.; Pecos, at nests of *Anthophora occidentalis* (W. P. C.); Mescalero; M. V. Typ. loc. Rapid City, S. Dak.
M. interrupta fallugiæ Ckll Vega S. José; Continental Divide; Pecos,* fls *Fallugia* (Grabham).
M. interrupta rociadensis Ckll. Rociada.*

ZACOSMIA Ashm.

Z. maculata Cress. M. V. Type from Nevada.

BOMBOMELECTA Patton.

B. fulvida Cress. M. V. Type from Nevada.
B. alfredi Ckll. M. V.
B. larreæ Ckll. M. V.*

STELIS Panz.

S. rudbeckiarum Ckll. S. F.*; Gila River.
S. permaculata Ckll. S. F.*

ANTHIDIUM Fabr.

Canadian to Upper Sonoran.

A. occidentale Cress. Beulah; San Ignacio; Pecos, Aug. 4; Glorieta, August 23; Raton.

Canadian to Middle Sonoran.

A. maculosum Cress. Tuerto Mtn., 8025 ft.; Barela Mesa (A. Gohrman); Mescalero; top of Organ Mts.; L. V.; M. V. Type from Utah.

Upper Sonoran.

A. cognatum Cress. Organ Mts. Type from Georgia.
A. lupinellum Ckll. Pecos.*
A. pecosense Ckll. Pecos.*

Upper to Middle Sonoran.

A. porteræ Ckll. L. V. ; Pecos (mut. *amabile* Ckll.); M. V. The mut. *amabile* was taken at Boulder, Col., Aug. 5, 1906.

Middle Sonoran.

A. parosetæ Ckll. M. V.*

Locality Unknown.

A. emarginatum Say (*atrifrons* Cress.). "New Mexico." In Colorado this occurs from the Canadian Zone (Ward) to the border of the Upper Sonoran (Boulder).

DIANTHIDIUM Ckll.

D. perpictum Ckll. Beulah (1♂); Rio Ruidoso*; L. V.
D. gilense Ckll. Gila River*; Las Valles; Pecos, fls. *Geranium atropurpureum*, Aug. 21, ♀ (W. P. C.).
D. parvum Cress. S. F.; L. V.; Pecos; Organ Mts.
D. curvatum Smith. Albuquerque; Chaves; M. V.
D. larreæ Ckll. M. V.

MONUMETHA Cress.

M. albifrons Kirby. Beulah; Mescalero.

OSMIA Panz.

Hudsonian Zone.

O. inurbana Cress., var. (Mr. Titus thinks probably a distinct species). Top of Las Vegas Range; cf. Psyche, Dec., 1901, p. 283.

Hudsonian to Transition.

O. faceta Cress. Top of Las Vegas Range; Beulah; Mescalero.

Canadian Zone.

O. fulgida Cress. Beulah.
O. armaticeps sapellonis Ckll. Beulah.*
O. megacephala Cress. Head of Dailey Canon, Las Vegas Mts.
O. densa Cress. Beulah.
O. nigrifrons Cress. Beulah; Johnson Park, July 4, fls. loco-weed (A. Gohrman).
O. nigrifrons subaustralis Ckll. Beulah.
O. juxta Cress. Beulah.
O. n. sp. Titus. Rociada. This is the species which I considered to be *O. mandibularis* Cress.; Mr. Titus has seen the type of *mandibularis*, and finds it distinct.

Transition Zone.

O. pusilla Cress. Trout Spring, Gallinas Canon. Fls. *Iris* in May.
O. iridis Ckll. and Titus. Trout Spring. Fls. *Iris* in May.
O. chlorops Ckll. and Titus. Trout Spring. Fls. *Iris* in May.
O. bruneri Ckll. Barela Mesa (A. Gohrman).

Transition to Upper Sonoran.

O. lignaria Say. S. F.; L. V.; Romersville; Organ Mts.; Paraje.

Transition to Middle Sonoran.

O. cerasi Ckll. S. F.; M. V.

Upper Sonoran.

O. novomexicana Ckll. L. V.*; Johnson Park, July 4, fls. loco-weed (A. Gohrman).
O. lignaria ligneriella Ckll. L. V.; Romersville.*
O. ribifloris Ckll. L. V.; Romersville.*

Middle Sonoran.

O. phenax Ckll. M. V.
O. prunorum Ckll. M. V.*

ALCIDAMEA Cress.

A. biscutellæ Ckll. M. V.*

CHELOSTOMA Latr.

C. neomexicanum Ckll. Barela Mesa.* (A. Gohrman).

HERIADES Spinola.

Canadian to Middle Sonoran.

H. carinatus Cress. Beulah; S. F.; Mescalero; M. V.

Transition.

H. crucifera Ckll. S. F.

Upper Sonoran.

H. gracilior Ckll. Rio Ruidoso, fls. *Rhus*; Pecos (W. P. C.); L. V.; Organ Mts.*
H. variolosus Cress. Rinconada.

Middle Sonoran.

H. asteris Ckll. M. V.*

ASHMEADIELLA Ckll.

Canadian to Upper Sonoran.

A. bucconis Say. Beulah; L. V.; Albuquerque.*
A. cactorum Ckll. Beulah; S. F.*; L. V.

Upper Sonoran.

A. opuntiæ Ckll. Organ Mts.*

Upper to Middle Sonoran.

A. melliloti Ckll. Organ Mts.; M. V.

Middle Sonoran.

A. bigeloviæ Ckll. M. V.

A. prosopidis Ckll. M. V.

A. holtii Ckll. M. V.

LITHURGUS Berthold.

L. apicalis Cress. S. F.; Pecos, fls. *Opuntia*, July 16 (W. P. C).

L. apicalis opuntiæ Ckll. M. V.

L. echinocacti Ckll. Organ Mts.; M. V. Visits *Echinocactus wislizenii*.

MEGACHILE Latr.

Hudsonian to Upper Sonoran.

M. wootoni Ckll. Top of Las Vegas Range: Beulah; Rio Ruidoso ; Trout Spring; Johnson Park; Pecos.

M. vidua monardarum Ckll. Top of Las Vegas Range; Crew's Mesa ; Beulah: Rio Ruidoso; Pecos (W. P. C.); a variety with the scopa paler than usual. at fls. *Campanula rotundifolia*, auctt. Beulah. Aug. 16 (W. P. C) In the ♂ I cannot separate this species from the European *M. willughbiella* Kirby.

Canadian Zone.

M. relativa Cress. Harvey's Ranch; Beulah, fls. *Polemonium;* Rociada: Rio Ruidoso.

Canadian to Transition.

M. pollicaris pereximia Ckll. Beulah ; High Rolls (V.). This is the *pollicaris* of Cresson (Mr. Titus has compared it), but I think probably not the true insect of Say. Snow has taken it at Bill Williams' Fork, Arizona (det. Titus).

Canadian to Upper Sonoran.

M. sapellonis Ckll. Harvey's Ranch, 9600 ft.; Beatty's Cabin (W. P. C.); Beulah ; White Mts.; Pecos, Aug. 17 (W. P. C.).

M. pugnata Say. Beulah; S. F.; L. V.; Mescalero; near Viveash Ranch, 8800 ft. fls. *Erigeron*, July 21, ♀ (W. P. C.).

M. fidelis Cress. Beulah; L. V. H. S.; L. V.; Rio Ruidoso; Mescalero; Gila R.: San Ignacio; Burnt Canon.

M. montivaga Cress. Beulah, fls. *Geum* and *Roripa;* Rio Ruidoso; Raton.

M. fortis Cress. Beulah; San Ignacio: L. V. H. S.; Las Valles; Rociada; Mescalero; Rio Ruidoso.

M. mendica Cress. Rio Ruidoso: Las Valles. Visits *Verbascum*.

Transition to Upper Sonoran.

M. latimanus Say. S. F.; L. V.; San Ignacio; Trout Spring; Pecos (W. P. C.); Raton.

M. exilis Cress. S. F.; L. V.; Gila River; Rio Ruidoso; L. V. H. S.; Las Valles.

M. manifesta Cress. L. V. H. S.; L. V.

M. cleomis Ckll. S. F.; L. V.; Pecos; Albuquerque.

Transition to Middle Sonoran.

M. pruina Smith. L. V. H. S.; L. V.; Chaves; M. V. Extends to So. Calif. (Lower Sonoran).

Upper Sonoran.

M. heterodonta Ckll. L. V.*; Organ Mts.; Raton, Aug. 26.
M. brevis Say. Las Valles.
M. sayi Cress. Pecos; L. V., fls. *Verbena.*
M. emoryi Ckll. Pecos*
M. sexdentata Rob. Raton, July 31, 1903 (Karl Schivackhein).
M. agustini Ckll. Pecos.* Extends to Los Angeles, Calif. (Lower Sonoran).

Upper to Middle Sonoran.

M. occidentalis Fox. Organ Mts.; M. V. ; Alamogordo (V.).
M. soledadensis Ckll. Organ Mts.*; M. V,
M. cleomis lippiæ Ckll. Gila River; Organ Mts.*; Roswell; Alamogorda (V.); M. V.
M. sidalceæ Ckll. Lone Mtn. ; Organ Mts.; M. V.; Deming. Fls. *Prosopis, Opuntia,* etc.

Middle Sonoran.

M. chilopsidis Ckll. Rincon; M. V.* Fls. *Prosopis* and *Chilopsis.*
M populi Ckll. M. V.*
M. vallorum Ckll. Socorro; M. V.
M. newberryæ Ckll. M. V.* Fls. *Prosopis.*
M. townsendiana Ckll. Rincon; M. V.
M. casadæ Ckll. M. V.*
M. prosopidus Ckll. Rincon; M V.; Alamogordo (V.). Fls. *Prosopis* and *Chilopsis.*

CŒLIOXYS Latr.

Canadian Zone.

C. mœsta Cress, Beulah.*
C. porteræ Ckll. Harvey's Ranch, 9600 ft.*; Beulah (W. P. C.).
C. alternata Say. Beulah.

Canadian to Upper Sonoran.

C. ribis Ckll. Beulah; Romeroville.*
G. gilensis Ckll. Rio Ruidoso; S. F.; Gila River*; Gallinas River.

Transition to Middle Sonoran.

C. octodentata Say. S. F.; L. V.; Gila River; M. V.

Upper Sonoran (and Probably Transition).

C. rufitarsis rhois Ckll. Rio Ruidoso*, at about 6500 ft., fls. *Rhus.*
C. apacheorum Ckll. Mescalero.*
C. grindeliæ Ckll. Mescalero (a variety); L. V.*

Upper to Middle Sonoran.

C. sayi Rob. L. V., M. V.

Middle Sonoran.

C. menthæ Ckll. M. V.; Deming*
C. deplanata Cress. M. V.

MELISSODES Latr.

Canadian to Upper Sonoran.

M. grindeliæ Ckll. Tuerto Mtn, 8875 ft; S. F. ; L. V. H. S.; L. V.; Pecos, fls. *Sphæralcea fendleri*, Aug. 17 (W. P. C.); Organ Mts. Extends to La Jolla, Calif. (Lower Sonoran).
M. confusa Cress. (*ruidosensis* Ckll.). Beulah; Rio Ruidoso; L. V.
M. blakei Ckll. Beulah*; Tularosa Creek, fls. *Chrysothamnus*.

Transition.

M. hewetti Ckll. S. F.

Transition to Upper Sonoran.

M. sphæralceæ Ckll. S. F ; Pecos.
M. menuacha Cress. S. F.; L. V.; Raton. Fls *Grindelia*, etc.
M. pallidicincta Ckll. S. F; L. V.; Romersville; Pecos; Organ Mts; Gila R. ; Pinos Altos; Raton; Watrons; Gibson (A. Gohrman).

Transition to Middle Sonoran.

M. agilis Cress. S. F.; L. V.; San Ignacio; Organ Mts.; Albuquerque; Socorro; M. V. The var. *aurigenia* Cress. occurs at Las Vegas.
M. obliqua Say. S. F.; L. V.; Pecos; M. V.; Raton.

Upper Sonoran.

M. gilensis Ckll. Gila River*; L. V.; Organ Mts. Extends to San Pedro, Calif. (Lower Sonoran).
M. montana Cress. Gila River; Organ Mts. Typ. loc. Colorado.
M. humilior Ckll. Organ.*
M. martini Ckll. Las Valles. Fls *Petalostemon*.
M. chrysothamni Ckll. Embudo.*
M. mizeæ Ckll. L. V.*
M. pecosella Ckll Pecos.*
M. glenwoodensis Ckll. Maxwell City, fls. *Grindelia* (Mize.). Typ. loc. in Colorado.
M. nigrosignata Ckll. Near San Ignacio (W. P. C.). Typ. loc. in Arizona.
M. lupina Cress. Raton. 1 ♂, agreeing well with a co-type compared. Typ. loc. California.

Upper to Middle Sonoran.

M. tristis Ckll. L. V.; Magdalena Mts. (Snow); San Marcial; Organ Mts.; Mescalero; M. V.*; Raton.
M. menuacha submenuacha Ckll. Albuquerque; M. V.* Fls. *Helianthus* and *Verbesina*.
M. thelypodii Ckll. La Cueva, Organ Mts.*; M. V., fls. *Ipomœa*.

Middle Sonoran.

M. townsendi Ckll. M. V.*
M. kallstrœmiæ Ckll. M. V.*
M. kallstrœmiæ phenacoides Ckll. M. V.*
M. intermediella Ckll. M. V.* A variety occurs at Los Angeles, Calif.
M. helenæ Ckll. M. V.*
M. machæranthere Ckll. Near White Sands.* Extends to Buckeye, Ariz. (Lower Sonoran).
M. helianthelli Ckll. M. V.*
M. paroselæ Ckll. M. V.*
M. pecosella verbesinarum Ckll. M. V.*
M. texana flaveriæ Ckll. Roswell,* fls. *Flaveria.*

Locality Unknown.

M. herricki Ckll. "New Mexico."*

MARTINELLA Ckll.

M. luteicornis Ckll. Rincon*; M. V. Fls. *Prosopis.*

TETRALONIA Spinola.

T. dilecta Cress. L. V.; Barela Mesa.
T. truttæ Ckll. Trout Spring, Gallinas Canon.*
T. annæ Ckll. Gibson.*
T. lycii Ckll. Engle; M. V.*
T. crenulaticornis Ckll. Rio Ruidoso*; Mescalero.

XENOGLOSSA Smith.

X. pruinosa Say. L. V.; Pecos; Mescalero; M. V.
X. patricia Ckll. M. V.*
X. strenua Cress. M. V.

XENOGLOSSODES Ashmead.

X. imitatrix Ckll. and Porter. L. V.*; Glorieta (W. P. C.).
X. eriocarpi Ckll. Organ Mts.* Extends to Brownsville, Tex. (Low. Sonoran).
X. gutierreziæ Ckll. Organ Mts.*
X. excurrens Ckll. Roswell.*
X. lippiæ Ckll. La Cueva* and Dripping Spring, Organ Mts.
X. neotomæ Ckll. Raton.*

ENTECHNIA Patton.

E. grisella Ckll. and Porter. Las Valles.*

DASIAPIS Ckll.

D. ochracea Ckll. S. F.; M. V.*; Soledad Canon, Organ Mts. (Townsend). Fls. *Sphæralcea.*

DIADASIA Patton.

D. australis Cress. Santa Fé Canon, 7700 ft., ♀ in flower of *Opuntia arborescens* in wet weather; S. F.

D. australis rinconis Ckll. L. V.; Rincon*; M. V.
D. enavata Cress. M. V.
D. diminuta Cress. S. F.; L. V.; Mescalero; M. V.
D. sphæralcearum Ckll. M. V.*
D. megamorpha Ckll. M. V.*; by White Sands.

EMPHOROPSIS Ashm.

E. salviarum Ckll. Top of Organ Mts.*
E. n. sp. Vier. (cf. Can. Entom., July, 1905, p. 265).

CLISODON Patton.

Arctic-Alpine to Upper Sonoran.

C. terminalis Cress. Truchas Peak, just above timber-line (W. P. C.); Harvey's Ranch; Beulah; Pecos; Mescalero; Cloudcroft (V.).

ANTHOPHORA Latr.

Hudsonian to Upper Sonorun.

A. smithii Cress. (incl. *cardui* Ckll.). Top of Las Vegas Range; Beulah (♂. Aug.); L. V. H. S.; L. V.; Mescalero; Lone Mtn.

Canadian to Upper Sonoran.

A. neomexicana Ckll. Beulah; Trout Spring; S. F.; L. V.*; Pecos.

Transition to Upper Sonoran.

A. marginata Smith (incl. *cleomis* Ckll.). S. F.; L. V.; Rociada; Pecos.
A. occidentalis Cress. S. F.; L. V.; Pecos; Mescalero.

Transition to Middle Sonoran.

A. curta Prov. S. F.; L. V.; Embudo; M. V. The var. *peritomæ* Ckll. occurs at S. F. and M. V.

Upper Sonoran.

A. simillima Cress. Placita, fls. *Ribes.*
A. gohrmanæ Ckll. L. V.*
A. porteræ Ckll. L. V.; Romersville*; Engle. Extends to the Mojave Desert, Calif.
A. montana Cress. L. V.; Pecos; Vega S. José; Organ Mts.
A. urbana Cress. (incl. *alamosana* Ckll.). L. V.; Canada Alamosa; Albuquerque; Organ Mts.

Middle Sonoran.

A. texana Cress. M. V.; Deming.
A. lesquerellæ Ckll. M. V.*; Organ Mts.
A. phenax Ckll. M. V.*
A. affabilis Cress. Engle; M. V.
A. centriformis vierecki Ckll. Alamogordo (V.).*

ANTHOPHOROIDES T. and W. Ckll.

A. vallorum Ckll. M. V.

ANTHOPHORULA Ckll.

A. compactula Ckll. Organ Mts.; M. V.* Extends to Brownsville, Texas (Lower Sonoran).
A. sidæ Ckll. M. V.*

EXOMALOPSIS Spinola.

E. solani Ckll. Albuquerque;* Mescalero; Organ Mts.; M. V.
E. solidaginis Ckll. M. V.*
E. verbesinæ Ckll. M. V.*

CENTRIS Fabr.

Middle Sonoran.

C. morsei Ckll. M. V.*
C. morsei marginata Fox. M. V.* Extends to Douglas, Arizona, 3756 [illegible].
C. rhodopus Ckll. M. V.*
C. rhodopus pulchrior Ckll. M. V.*
C. cæsalpiniæ Ckll. M. V.*
C. hoffmanseggiæ Ckll. M. V.*
C. cockerelli Fox. M. V.
C. lanosa Cress. M. V.

XYLOCOPA Latr.

X. arizonensis Cress. Lone Mtn.; Organ Mts.; M. V.

CERATINA Latr.

C. neomexicana Ckll. Chicorico Canon, near Raton ; Rio Ruidoso; S. F.
C. nanula Ckll. M. V.*

PSITHYRUS Lep.

P. variabilis Cress. Tuerto Mtn., 8200 ft.
P. insularis Smith. Beulah.
P. cevalliæ Ckll. M. V.*

BOMBUS Latr.

Arctic-Alpine to Hudsonian.

B. frigidus Smith. Truchas Peak, above timber-line (W. P. C.); top of Las Vegas Range. Typ. loc. Arctic America.

Arctic-Alpine to Canadian.

B. flavifrons Cress. Truchas Peak, above timber-line (W. P. C.); top of Las Vegas Range; Beulah (Skinner). Var. *veganus* Ckll. is from top of Las Vegas Range.*

Arctic-Alpine to Transition.

B. huntii Greene. Truchas Peak, above timber-line (W. P. C.); top of Las Vegas Range; Harvey's Ranch; Beulah; Rio Ruidoso; Mescalero; Aztec. The synonymy of this species will be explained elsewhere by Mr. H. J. Franklin. Viereck reports var. *bifarius* Cress. from Beulah.

Hudsonian to Canadian.

B. proximus Cress. Top of Las Vegas Range; Harvey's Ranch; Beulah; Santa Fé Canon.

B. appositus Cress. Top of Las Vegas Range; Harvey's Ranch; Beulah; Santa Fé Canon; Rio Ruidoso.

B. juxtus Cress. Top of Las Vegas Range; Harvey's Ranch; Beulah; Santa Fé Canon; Rio Ruidoso.

Canadian Zone.

B. proximus perixanthus Ckll. and Porter. Harvey's Ranch, 9600 ft.

B. monardæ Ckll. and Porter. Beulah; Santa Fé Canon *; Rio Ruidoso Fls. *Monarda*, etc.

B. rufocinctus Cress. Beulah.

B. consimilis Cress. Beulah (fide Viereck).

B. centralis Cress. Cloudcroft (fide Viereck).

Canadian to Transition.

B prunellæ Ckll. Beulah ; Rio Ruidoso; Mescalero. Ashmead has referred this to *sitkensis*, but it is distinct from that species, as Mr. Franklin agrees.

Canadian to Upper Sonoran.

B. iridis Ckll. and Porter. Beulah*; Santa Fé Canon; Pecos. Fls. *Iris*, etc.

B. fervidus Fabr. Beulah; Rio Ruidoso; L. V.

B. nevadensis Cress. (*cressoni* Ckll.). Beulah; Rio Ruidoso; Mescalero: White Mtn., 10.300 ft., fls. *Delphinium* (Townsend); L. V.

B. dorsalis Cress. (*aztecus* Ckll. fide Franklin). Beulah; Rio Ruidoso: Mescalero; Aztec; L. V.

B. edwardsii Cress. Beulah, May 30 (W. P. C.); Pecos, June 25, fls. *Fallugia* (W. P. C.).

Transition Zone.

B. proximus howardi Cress. San Ignacio.

Transition to Middle Sonoran.

B. morrisoni Cress. S. F.; L. V.; Albuquerque; M. V.: Organ Mts.: Rio Ruidoso; Mescalero; Romersville; Pecos.

B. sonorus Say. Rio Ruidoso; M. V.; Pecos (a variety). Extends to San Pedro, Calif. (Lower Sonoran).

Upper Sonoran.

B. scutellaris Cress. L. V.

Upper to Middle Sonoran.

B. americanorum Fabr. L. V.; M. V.

APIS L. (introduced).

A. mellifera ligustica Spin. Beulah; S. F.; L. V.; Pecos, etc.

Undoubtedly many of the Middle Sonoran species range into the Lower Sonoran of Arizona and Mexico; how many, the imperfection of our knowledge prevents us from deciding. It is probable that the Middle Sonoran is to be distinguished from the Lower by the *absence* of various types existing in the latter, rather than by the presence of peculiar types of its own. The following species may be cited as occurring in the Lower Sonoran of Arizona, but apparently not entering New Mexico:

Centris atripes Mocs. (Douglas). *Oxæa tristis* Gribodo (Douglas). *Colletes tucsonensis* Ckll. (Tucson). *Xylocopa varipuncta* Patt. (Tempe). *Ceratina arizonensis* Ckll. (Phoenix). *Halictus kunzei* Ckll. (Phoenix). *Centris pallida* Fox (Phoenix). *Perdita baccharidis* Ckll. (Tempe). *P. mellina* Ckll. (Phoenix). *P. heterothecæ* Ckll. (Tempe, Phoenix). *Xenoglossa patricia angustior* Ckll. (Buckeye). *Hypomacrotera callops persimilis* Ckll. (Phoenix). *Bombomelecta arizonica* Ckll. (Tempe). *Triepeolus helianthi arizonensis* Ckll. (Phoenix). *T. pimarum* Ckll. (Alhambra).

Some of these reappear in the Lower Sonoran of Texas.

New Species.

Xenoglossodes neotomæ n. sp.

A small species with narrow abdomen in the ♀, allied to *X. lippia*.

♀.—Length about 10½ mm.; hair of face, cheeks and pleura white; of head and thorax above pale ochreous; differs from *lippiæ* in being smaller, with the abdominal bands yellowish instead of white; the apical one on the second segment entire; the black interval between the bands on the third wider, being of the same width as the apical band; the fourth segment ornamented like the third, with the margin of the apical band straight; the fifth and sixth segments heavily fringed with creamy-white hair, stained with reddish in the middle; the hair on inner side of basal joint of hind tarsi very light fulvous; the hair of thorax above strongly yellowish; the antennæ considerably shorter, and the flagellum more or less dark reddish beneath. Runs in my tables near *T. actuosa*, but the mesothorax is shining, and the abdomen is of an entirely different shape.

♂.—Length 10 mm.; more like *lippiæ*: hair of head and thorax white above and below, or faintly yellowish above: flagellum long, strongly crenulate, very dark reddish beneath; clypeus and labrum entirely pale lemon yellow; *mandibles with a large yellow spot*: abdominal segments with *only the apical hair-bands distinct*: tegulæ pale testaceous.

In Proc. Biol. Soc. Wash., 1905, p. 179, I called attention to the *Xenoglossodes*-like palpi of *Tetralonia lippiæ*. The present species bridges over the gap between *lippiæ* and ordinary *Xenoglossodes* to a considerable extent, and I think both should be referred to that genus.

Hab.—Raton, New Mexico, August, 1 ♀, 2 ♂ (T. D. A. and W. P. Ckll.). *X. neotomæ* derives its name from *Neotoma*, the woodrat, which gave rise to the name Raton.

A Second Collection of Mallophaga from Birds of the Galapagos and Revillagigedo Islands and Neighboring Waters.

BY VERNON L. KELLOGG, STANDFORD UNIVERSITY, CAL.

In 1902 Mr. Kuwana and I published (Proc. Wash. Acad. Sci., vol. iv, pp. 457-499, plates XXVIII–XXXI, September, 1902) an account of a collection of Mallophaga biting (bird-lice) made by Mr. R. E. Snodgrass of the Hopkins-Stanford Galapagos Expedition of 1898–99. This was the first collection of Mallophaga ever made from these islands, and included specimens from 183 birds representing 34 out of the 79 bird species known on the islands. Of the 5 bird genera and 48 species peculiar to the islands, Mallophaga were taken by Mr. Snodgrass from all the genera and from 26 of the species. The whole number of species of Mallophaga in the collection is 43, of which 25 were new to science and were described in the paper referred to.

The present collection is one made by Mr. Rollo Beck in the summer of 1901, and the third determinations are those of the collector. While the collection contains but three new species, including one new genus (a fact saying much for the thoroughness of Mr. Snodgrass's collecting in 1898–99), it nevertheless extends the host record for several previously known species, and for that reason alone the list should be put on record. As I am at present engaged in preparing the account of the Mallophaga for Wytsman's Genera Insectorum, I wish to include Mr. Beck's records in this account, and hence, with the assistance of two students, A. W. Wellmann and A. M. Brown, familiar with the Mallophaga, I have rather hurriedly, but I think safely, determined and listed the species included in Mr. Beck's collection.

The original descriptions and host records for all species hitherto accredited to the Galapagos Islands are to be found in the paper in the Proceedings of the Washington Academy of Sciences already referred to. All of Mr. Beck's host records are given in the present list, and wherever the host record is new the fact is mentioned. Exactly the same remarkable phenomena of host distribution are to be noted in the records of Mr. Beck's collection as were apparent in Mr. Snodgrass's records. And this indicates—what, indeed, was almost certain by reason of Mr. Snodgrass's care—that these phenomena represent truly the normal conditions of distribution. The explanation suggested by me on pp. 458 and 459, Proc. Wash. Acad. Sci., vol. iv, in a discussion of this startling distribution (the occurrence of a parasite species on two hosts so widely systematically separated and with such different habits as a tern and a sparrow) is probably the true one. We have to do, that is with an abnormal phase of normal straggling! On the rocks of the islands maritime and land birds often sit closely huddled (as Snodgrass observed and reported) actual contact of the bodies of the different birds often occurring. Migration of the parasites is thus easily effected, and individuals of a parasitic species nominally peculiar to maritime birds find their way to a sparrow or honey creeper.

Genus **DOCOPHORUS.**

D. validus minor Kell. and Kuw., Proc. Wash. Acad. Sci., vol. iv, p. 460, 1902.

From *Puffinus subalaris* (Culpepper, Albemarle Ids.).

D. peristictus Kell. and Kuw., Proc. Wash. Acad. Sci., v. iv, p. 462, pl. 25, fig. 2, 1902.

From *Puffinus subalaris* (Culpepper Id.). New record,

D. taurocephalus Kell., New Mall. II, p. 471, pl. 45, fig. 1, 1896.

From *Puffinus subalaris* (Seymour Id.), new record.

D. platycephalus Kell. and Kuw., Proc. Wash. Acad. Sci., vol. 4, p. 461. pl. 28, fig. 1, 1902.

From *Oceanites gracilis* (Wenman Id.).

D. phætonus Osborn, Proc. U. S. Nat. Mus., vol. xii, p. 189, 1899.

From *Phæthon ætherus*, new record (Daphne, Indefatigable Ids.), *P. flavirostris*, new record (Wenman Id.).

D. albemarlensis Kell. and Kuw., Proc. Wash. Acad. Sci., vol. iv, p. 465, pl. 28, fig. 5, 1902.

From *Phæthon ætherus*, new record (Seymour Id.), *Sterna fuliginosus* (Culpepper Id.).

D. melanocephalus Burm., Handb. d. Ent., vol. ii, p. 426, 1839.

From *Sterna fuliginosus* (1° N. 93° W.), *Anous stolidus galapagensis*, new record (Wenman, Culpepper Ids.), *Creagrus furcatus* (1° N. 93° W.), new record.

D. cursor Nitzsch, Giebel's Ins. Epiz , p. 75, pl. 10, figs. 5 and 6, 1874.

From *Asio galapagœnsis*, new record (Clarion Id.).

D. corvi Osborn, Bulletin 5, N. S. Div. of Ent., U. S. Dept. of Agric., p. 220. fig. 142. 1896.

From *Corvus* sp., new record (Clarion Id.).

D. icterodes Nitzsch, Giebel's Ins. Epiz., p. 115, pl. 10, fig. 8, 1874

From *Anas versicolor*, new record (Indefatigable Id.).

D. breviformis Kell. and Kuw., Proc. Wash. Acad. Sci., vol. iv, p. 463. pl. 28, fig. 3, 1902.

From *Progne modestu* (Indefatigible Id.).

D. domesticus Kell., New Mall., II, p. 475, pl. 45, fig. 4, 1896.

From *Progne modesta*, new record (Indefatigable Id.).

D. lari Denny, Anoplur. Brit., p. 89, pl. 5, fig. 9, 1842.

From *Creagrus furcatus* (1° N. 93° W.).

D galapagœnsis Kell. and Kuw.

From *Nesomimus parvulus* (Indefatigable Id.).

D. speotyti Osborn, Bulletin 5, N. S., Div. of Ent., U. S. Dept. of Agric.. p. 222, fig. 144, 1896.

From *Speotyto* sp.

Genus NIRMUS.

N. gloriosus Kell. and Kuw., Proc. Wash. Acad. Sci., vol. 4, p. 467, pl. 29. fig. 1, 1902.

From *Anous stolidus galapagœnsis* (6° N. 115° W.).

N. galapagœnsis Kell. and Kuw., Proc. Wash. Acad. Sci., vol. iv, p. 471, pl. 29, fig. 5, 1902.

From *Anous stolidus galapagœnsis* (6°N. 115° W.), *Nesomimus melanotes*, new record (James Id.), *Geospiza fortis* (Indefatigable Id.).

N. separatus Kell. and Kuw., Proc. Wash. Acad. Sci., vol. 4, p. 472, pl. 29, fig. 6, 1902:

From *Anous stolidus galapagœnsis* (Wenman Id.), *Oceanodroma cryptoleneura*, new record (Bindloe Id.), *Sterna fuliginosa*, new record (Bindloe Id.). *Nesopelia galapagœnsis*, new record (Bindloe Id.).

Nirmus ridgwayi n. sp.

Males and females from *Hœmatopus galapagœnsis* (Indefatigable Id.). A member of Piaget's group *bicuspidati*.

Female.—Body, length 2.34 mm.; width .56 mm.; pale, with strong lateral bands and light brown narrow segmental transverse blotches; differing from *signatus* and *bicuspis* by not having the dorsum mostly brown. Head, length .6 mm ; width .45 mm.; elongate, clypeus expanded anteriorly in a thin transparent portion with flatly rounded margin, clypeal signature weak, clypeal sutures distinct, two hairs at suture, one in front of suture and one behind; trabeculæ distinct, although small; temporal margins flatly convex with two longish hairs; lateral margins of head sharply narrowly blackish brown; no occipital signature; antennæ with segment 2 longest segment 3 nearly as long, and 5 a little longer than 4, uncolored. Prothorax nearly square, lateral margins weakly concave in median part, one small hair in each posterior angle; metathorax pentangular with lateral margins slightly concave in middle, the two posterior sides meeting by a flatly rounded obtuse angle, six pustulated hairs in each postero-lateral angle, two of these hairs longest and set in a common pustule, lateral margins narrowly but strongly blackish brown. Legs almost uncolored, except for pale smoky brown tinge on tibiæ and tarsi. Abdomen fairly slender, with flatly convex sides, with two to three longish weak hairs in the postero-lateral segmental angles, and the margins narrowly but strongly blackish brown, and rather incomplete narrow pale brown transverse blotches across the posterior margin of each segment; these transversal linear blotches have each a small triangular expansion in the middle; last abdominal segment markedly two-pointed although these points are not long.

Male.—Body, length 1 84 mm.; width .5 mm.; head, length .56 mm.: width .41 mm.; on abdomen a brown suffusion over most of segments 3-6; on segment 8 this brown is in the form of two distinct lateral blotches tapering toward the median line of the body and not quite meeting, on segment 9 the brown extends clear across as a strong transverse blotch; posterior margin of last segment rounded, brown, and bearing several longish weak hairs.

N. fuscus Nitzch, Giebel, Zeitsch. f. ges. Naturw.. vol. xvii, p. 523, 1861.

From *Buteo galapagensis*, new host record (Bindloe Id.).

N. fuscomarginatus Denny, Anoplur. Brit., p. 136, pl. 10, fig. 1, 1842.

From *Nesomimus parvulus*, new host-record (Indefatigable Id.).

Genus **LIPEURUS.**

Lipeurus ferox Giebel, Zeitsch. f. ges. Naturw., vol. xxix, p. 195, 1867.

From *Diomedea nigripes* (16° N. 114° W., Clarion Id.).

L. confidens Kell., New Mall., III, p. 26, pl. 3, fig. 1. 1899.

From *Diomedea nigripes* (Clarion Id.).

L. diversus Kell., New Mall., i, p. 123, pl. 8, figs. 3 and 4, 1896.

From *Puffinus obscurus subalaris* (Culpepper Id.), *Anous stolidus galapagensis* (Culpepper Id.), *Fulmarus* sp. (13° N. 103° ? W.), *Æstrelata phæopygia*, new record (13° N. 103° ? W.).

L. languidus Kell. and Kuw., Proc. Wash. Acad. Sci., vol. 4, p. 475. pl. 29. fig. 8, 1902.

From *Oceanites gracilis* (1° N. 93° W., 13° N. 103° W., Wenman Id.), *Puffinus obscurus subalaris*, new record Culpepper Id. , Albemarle Id., Clarion Id.), *Fulmarus* sp., new record (Wenman Id.), *Sula fuliginosa*, new record (1° N. 93° W.), *Æstrelata phæopygia*, new record (12° 50′ N. 107° W.), *Phocellaria tethys* (Wenman Id.).

L. potens Kell. and Kuw., Proc. Wash. Acad. Sci., vol. iv, p. 477, pl. 30, fig. 1, 1902.

From *Puffinus subalaris*, new record (Seymour and Wenman Ids.), *Phæthon æthereus*, new record (Daphne Id. ; 16° N., 114° W.; Seymour Id.), *Fregata aquila*, new record (Wenman Id.), *Sula websteri* (Culpepper Id.; 4° N. 96° W.; 12° N. 107° W.; Tower Id., Clarion Id., Wenman Id.), *Sula variegata*, new record (6° N., 115° W., Clarion Id., 15° N., 113° W., Culpepper Id., Wenman Id., 13° N., 103° W., Seymour Id.), *Sula nebouxi*, new record (Seymour Id.), *Sula brewsteri*, new record (12° N. 107° W.).

L. helleri Kell. and Kuw., Proc. Wash. Acad. Sci., vol iv, p. 479, pl. 30, fig. 3, 1902.

From *Puffinus subalaris*, new record (Clarion Id.), *Anous stolidus galapagœnsis*, new record (Bindloe Id.; 1° N. 93° W.), *Sula variegata*, new record (Culpepper Id., Clarion Id.), *Sula webster*i 1° N. 93° W.; Bindloe Id., Tower Id., Wenman Id., Seymour Id., Culpepper Id., 16° N. 114° W.; Clarion Id.), *Sterna fuliginosa*, new record 1° N. 93° W.).

L. exiguus Kell. and Kuw., Proc. Wash. Acad. Sci., vol. iv, p. 479, pl. 30, fig. 2, 1902.

From *Oceanites gracilis* (13° N. 110° W.), *Puffinus subalaris*, new record (Clarion Id.), *Fregata aquila*, new record (Clarion Id.).

L. limitatus Kell., New Mall., i, p. 124, pl. 8, figs. 5 and 6, 1896.

From *Puffinus subalaris* (Wenman and Clarion Ids.), *Æstrelata phæopygia*, new record (13° N. 103° W).

L. fuliginosus Tasch., Die Mall., p. 156, pl. 8, figs. 5 and 6, 1896.

From *Sula websteri*, new record (Clarion Id.).

L gracilicornis major Kell., New Mall., iii, p. 30, pl. 3, fig. 3, 1899.

From *Fregata aquila* (16° N. 114° W., Wenman Id., Clarion Id.), *Sula variegata*, new record (Clarion Id.).

L. baculus Nitzsch, Zeitsch. f. ges. Naturw., vol. 18, p. 305, 1861.

From *Nesopelia galapagœnsis*, new record (Bindloe Id.).

Genus GIEBELIA.

Giebelia mirabilis Kell., New Mall., i, p. 138, pl. 11, figs. 7 and 8, 1896.

From *Puffinus subalaris* (Wenman and Clarion Ids.), *Fulmarus* sp., new record (13° N. 103° W., Wenman Id.), *Oceanites gracilis*, new record (13° N. 103° W.), *Sula websteri*, new record (Clarion Id.), *Æstrelata phæopygia*, new record (13° N. 103° W.).

Genus PHILOCEANUS.

Philoceanus (n. gen.) **becki** (n. sp.) Kell. Biol. Bull. vol. v, p. 87, figs. 1, 2, 1903.

From *Procellaria tethys* (Wenman Id.).

Genus EURYMETOPUS.

E. brevis Dufour, Ann. Ent. Soc. France, vol. iv, p. 674, pl. 31, fig. 3, 1831.

From *Diomedea nigripes* (16° N. 114° W., Clarion Id.).

Genus GONIOCOTES.

G. galapagœnsis Kell. and Kuw., Proc. Wash. Acad. Sci., vol iv, p. 481, pl. 30, fig. 5, 1902.

From *Fregata aquila*, new record (Wenman Id.), *Sula websteri*, new record (Wenman Id.), *Anous stolidus galapagœnsis* (Bindloe Id.), *Nesopelia galapagœnsis*, new record (Bindloe Id.).

Genus TRINOTON.

T. lituratum Nitzsch, Giebel's Ins., Epiz., p. 260, pl. 18, fig. 10, 1874.

From *Anas versicolor*, new record (Indefatigable Id.).

T. luridum Nitzsch, Giebel's Ins. Epiz., p. 258, pl. 18, fig. 7, 1874.

From *Anas versicolor*, new record (Indefatigable Id.), *Hæmatopus galapagœnsis* new record (Indefatigable Id.).

Genus COLPOCEPHALUM.

C. spineum Kell., New Mall., iii, p. 38, pl. 4, fig. 1, 1899.

From *Anous stolidus galapagœnsis* (Wenman Id.), *Puffinus subalaris*, new record (Wenman Id.), *Sula websteri*, new record (Wenman Id.), *Fregata aquila* (16° N. 114° W., Clarion Id., Wenman Id.).

C. funebre Kell. New Mall., i, p. 147, pl. 12, fig. 7, 1896.

From *Phæthon æthereus*, new record (Daphne Id.).

C. milleri Kell. and Kuw., Proc. Wash. Acad. Sci., vol. iv, p. 483, pl. 30. fig. 6, 1902.

From *Anous stolidus galapagœnsis* (Bindloe and Wenman Ids., 1° N., 93° W.), *Phæthon æthereus*, new record (13° N. 103° W., Wenman Id.), *Sula variegata*, new record (Culpepper and Seymour Ids., 6° N. 115° W.), *Sula nebouxi*, new record (Seymour Id.), *Nesopelia galapagœnsis*, new record (Bindloe Id.).

C. subæquale Nitzsch, Giebel Ins. Epiz., p. 265, pl. 13, figs. 13 and 14, 1874.

From *Sula websteri*, new record (Clarion Id.), *Fregata aquila*, new record (Clarion Id.), *Corvus* sp., new record (Clarion Id.).

C. unciferum Kell., New Mall., i, p. 140, pl. 12, figs. 1-3, 1896.

From *Sula variegata*, new record (6° N., 115° W.), *Fregata aquila*, new record (Wenman Id.), *Anous stolidus galapagœnsis*, new record (Wenman Id.), *Anas versicolor*, new record (Indefatigable Id.).

C. flavescens Nitzsch, Zeitsch, f. ges. Naturwiss., vol 17, p. 522, 1861.

From *Buteo galapagœnsis*, new record (Indefatigable Id.), *Fregata aquila*, new record (Wenman Id.).

C. grandiceps Piaget, Les Pedic., p. 558, pl. 46, fig. 7, 1880.

From *Hæmatopus galapagœnsis*, new record (Indefatigable Id.).

C. heterosoma Piaget, Les Pedic., p. 572, pl. 48, figs. 3 and 4.

From *Progne modesta*, new record (Indefatigable Id.).

Genus **MENOPON.**

M. fuscofasciatum Piaget, Les Pedic., p. 492, pl. 40, fig. 9, 1880.

From *Phæthon æthereus*, new record (Daphne Id., Indefatigable Id., Seymour Id.), *Sula variegata*, new record (6° N. 115° W.), *Fregata aquila*, new record (Wenman Id.), *Anous stolidus galapagœnsis*, new record (7°30′ N. 115° W.).

M. numerosum Kell., New Mall., i, p. 159, pl. 15, fig. 1, 1896.

From *Puffinus subalaris*, new record (Seymour Id.).

M. singularis Kell. and Kuw., Proc. Wash. Acad. Sci., vol. v, p. 485, pl. 31, fig. 1, 1902.

From *Phæthon æthereus*, new record (13° N. 103° W.), *Sula variegata*, new record (15° N., 113° W., Culpepper Id., Wenman Id.)., *Sula nebouxi*, new record (Seymour Id.), *Sterna fuliginosa*, new record (Bindloe Id.).

M. narboroughi Kell. and Kuw., Proc. Wash. Acad. Sci., vol. iv, p. 485, pl. 31, fig. 2, 1902.

From *Sula variegata*, new record (Culpepper Id.), *Anous stolidus galapagœnsis*, new record (Bindloe Id.).

M. navigans Kell., New Mall., i, p. 156, pl. 14, figs. 4 and 5, 1896.

From *Sula variegata*, new record (13° N., 103° W.).

Menopon beckii n. sp.

One female from *Phæthon æthereus*, Daphne Id. A broad dark form of some similarity to *singularis* K. and *narboroughi* K., described from Galapagos birds, but differs in various noticeable details

Female.—Body length, 2.4 mm.; width, 1.12 mm.; robust bodied, almost wholly brown.

Head.—Length .44 mm.; width .85 mm.; the outline of the head is roughly pentangular, the front being roundly obtusely angled in the middle and at the antero-lateral regions; numerous small and some longish hairs scattered along the margin and five long hairs in each temporal angle; color all brown with darker bands and borders. Prothorax with prominent lateral angles and longish hairs all along lateral and posterior margins, color same as head with darker chitinized bands. Meso- and metathoracic segment with lateral margins slightly concave or emarginate at middle indicating line of fusion between the two segments, fourteen short stiff hairs along posterior margin, latero-posterior angles with two longish hairs; color of whole thorax same as head, with a narrow transversal uncolored band along line of fusion of meso- and metasegments, and another along posterior margin of metathorax; also a thin incomplete median longitudinal uncolored line. Abdomen broadly ovate, completely covered by strong brown transverse blotches, except for the distinct narrow uncolored sutural spaces, these more marked on posterior half of abdomen than on anterior half; no 'coma'-shaped darker markings (chitinized bands) as in *M. singularis* K. and *M. narboroughi* K. (the rather similar Menopon species already described from Galapagos birds); a single transverse submarginal row of slightly pustulated hairs across posterior part of each segment, and two to three long weak hairs in each latero-posterior angle; hindmost segment all brown, with even flatly rounded posterior margin.

M. incertum Kell., New Mall., ii, p. 533, pl. 73, fig. 2, 1896.

From *Nesomimus parvulus* (Indefatigable Id.), *N. melanotis*, new record (James Id.), *Progne modesta*, new record (Indefatigable Id.), *Sterna fuliginosa*, new record (Bindloe Id.).

M. rusticum Giebel, Ins. Epiz., p. 288, 1874.

From *Progne modesta*, new record (Indefatigable Id.).

List of Hosts with Parasites.

Diomedia nigripes.
Lipeurus ferox.
“ confidens.
Eurymetopus brevis.

Fulmarus sp.
Lipeurus diversus.
“ languidus.
Giebelia mirabilis.

Puffinus subularis.
Docophorus validus minor.
“ peristictus.
“ taurocephalus.
Lipeurus languidus.
“ diversus.
“ potens.
“ helleri.
“ exiguus.
“ limitatus.
Giebelia mirabilis.
Colpocephalum spineum.
Menopon numerosum.

Oceanites gracilis.
Docophorus platycephalus.
Lipeurus languidus.
“ exiguus.
Giebelia mirabilis.

Phæton ætherus.
Docophorus phætonus.
“ albemarlensis.
Lipeurus potens.
Colpocephalum funebre.
“ milleri.
Menopon fuscofasciatum.
“ singularis.
“ becki.

Phæton flavirostris.
Docophorus phætonus,

Sula websteri.
Lipeurus helleri.
“ potens.
“ fuliginosus.
Giebelia mirabilis.
Gonicotes galapagœnsis.
Colpocephalum subæquale.
“ spineum.

Sula variegata.
Lipeurus potens.
“ helleri.
“ gracilicornis major.
Colpocephalum milleri.
“ unciferum.
Menopon navigans.
“ singularis.
“ narboroughi.
“ fuscofasciatum.

Sula nebouxi.
Lipeurus potens.
Colpocephalum milleri.
Menopon singularis.

Sula brewsteri.
Fregata aquila.
Lipeurus potens.
“ gracilicornis major.
“ exiguus.
Colpocephalum spineum.
“ subæquale.
“ unciferum.
“ flavescens.
Gonicotes galapagœnsis.
Menopon fuscofasciatum.

Anous stolidus galapagœnsis.
Docophorus melanocephalus.
Nirmus gloriosus.
“ galapagœnsis.
“ separatus.
Lipeurus helleri.
“ diversus.
Gonicotes galapagœnsis.
Colpocephalum milleri.
“ unciferum.
“ spinerum.
Menopon fuscofasciatum.
“ narboroughi.

Stera fuliginosa.
Docophorus albemarlensis.
“ melanocephalus.
Nirmus separatus.
Lipeurus languidus.
“ helleri.
Menopon incertum.
“ singularis.

Creagrus furcatus.
Docophorus lari.
" melanocephalus.

Oceandroma cryptoleucura.
Nirmus separatus.

Procellaria tethys.
Lipeurus languidus.
Philoceanus becki.

Æstrelata phaopygia.
Lipeurus limitatus.
" languidus.
" diversus.
Giebelia mirabilis.

Anas versicolor.
Docophorus icterodes.
Trinoton lituratum.
" luridum.
Colpocephalum unciferum.

Hæmatopus galapagœnsis.
Trinoton luridum.
Nirmus ridgwayi.
Colpocephalum grandiceps.

Nesopelia galapagœnsis.
Nirmus separatus.
Lipeurus baculus.
Gonicotes galapagœnsis.
Colpocephalum milleri.

Buteo galapagœnsis.
Nirmus fuscus.
Colpocephalum flavescens.
" (juv.).

Asio galapagœnsis.
Docophorus cursor.

Corvus sp.
Docophorus corvi.
Colpocephalum subæquale.

Progne modesta.
Docophorus domesticus.
" breviformis.
Colpocephalum heterosoma.
Menopon incertum.
" rusticum.

Nesomimus parvulus.
Docophorus galapagœnsis.
Nirmus fuscomarginatus.
Menopon incertum.

Nesomimus melanotus.
Nirmus galapagœnsis.
Menopon incertum.

Geospiza fortis.
Nirmus galapagœnsis.

A Contribution towards a knowledge of the Nearctic Odynerinæ.

BY P. CAMERON.

Having recently written papers on the Solitary Wasps of the Southwest of the United States, in the collection of Prof. C. F. Baker, for publication in the "Invertebrata Pacifica," I give here some descriptions from other districts of the United States and Canada.

Symmorphus cogitans sp. nov.

Black, shining, an irregular mark, wider than long, on the top of the clypeus, one of the same size over the antennæ, a small one behind the eyes, near the top, a triangular mark on the outer edge of the pronotum, 2 marks narrowed on the inner side, on the apex of the scutellum, a larger, oblique, conical mark below the tegulæ, a line, dilated backwards on the sides, on the apex of the 1st abdominal segment, a wider, more irregular one, on the 2nd and a narrower one, interrupted in the middle, on the 4th, lemon-yellow; the apex of the femora narrowly, the 4 anterior tibiæ, in front, and the basal two-thirds of the hind tibiæ yellow, the tarsi rufous yellow. Wings almost hyaline at the base, the apex fuscous violaceous, the tegulæ dark fuscous, lemon-yellow at the apex. ♀. Total length 7 mm.

Clypeus as wide as long, depressed at the apex, which is transverse, the centre on the lower two-thirds strongly, deeply punctured; the front and vertex strongly, closely punctured, the temples wide, rounded. Thorax about two and a half times longer than wide, rounded at the base and on the sides of metanotum. Parapsidal furrows distinct. Basal half of mesonotum strongly, but not closely punctured, the apical more weakly and much more sparsely punctured: the apex in the middle depressed, with two longitudinal keels. Scutellum flat, the base smooth, the apex rugosely punctured; a wide, deep furrow down the centre of the apical three-fourths. Scutellar depression with five keels, besides the outer bordering ones. Post-scutellum coarsely, rugosely punctured at the base, its apex smooth, bluntly rounded. Base of metanotum coarsely, closely irregularly reticulated, as are also the sides, which are not margined, the centre is minutely, closely striated. Propleuræ coarsely, rugosely punctured; the mesopleuræ behind the yellow mark with large, clearly separated punctures, the apex above stoutly, closely striated, the lower part coarsely aciculated; the upper part of metapleuræ aciculated and bearing round, distinctly separated punctured. First abdominal segment distinctly longer than it is wide at the apex; the basal slope forms a longish triangle, and is aciculated; the top bordering keel is smooth and curves down slightly in the middle; the longitudinal furrow is narrow and is placed in a depression; the 2nd is clearly longer than it is wide at the apex, is narrowed at the base, which is aciculated and obscurely punctured; the abdomen is as long as the head and thorax united. The stout antennæ are placed immediately over the face.

Canada. Allied apparently to *S. canadensis* Sauss., the description of which is very defective, as is admitted by Saussure, cf. Syn. Am. Wasps, 157.

Symmorphus albomarginatus Sauss.

I have examined a ♀ and ♂ of what may be this species from Montreal. They are barely 7 mm. long (total length). The clypeus (♀) is as long as broad, is very shining, very sparsely weakly punctured; its apex ends in two distinct teeth, but is not deeply incised. Thorax more than twice longer than wide, transverse at the base, without distinct lateral angles; parapsidal furrows distinct at base only. Scutellum with a distinct, deep furrow down the apical three-fourths. Postscutellum prominent, rugosely punctured, the apex smooth, broadly rounded. Base of metanotum coarsely rugosely punctured, reticulated, the sides bordered by a keel; there is a keel down the centre of the apex, which is finely transversely striated. Upper half of mesopleuræ strongly punctured, the lower almost smooth; the two parts are separated by a furrow; the upper part of metapleuræ coarsely longitudinally aciculated, the lower raised, smooth, shining. The first abdominal segment is strongly punctured, the punctures clearly separated; the basal slope bordered by a ridge; the 2nd segment is slightly longer than wide, smooth, narrowed at the base. The apices of the tibiæ are broadly infuscated.

The ♂ has the clypeus yellow; it is, if anything, longer than wide, almost smooth, its apex roundly incised; the mandibles are largely yellow at the base. The antennæ are stout, thickened towards the apex, which has no hook. In both sexes there is a yellow spot on the apex of the antennal scape. In the ♀ there is no yellow line on the 3rd abdominal segment, but a narrow, obscure one on the 4th; in the ♂ there is a narrow line on the 3rd, but none on the 4th.

S. cogitans, described in this paper, is closely allied; it may be readily separated by the base of the thorax being round, not transverse, without lateral angles; it is also longer, compared with the width, the part behind the tegulæ being longer, compared with the anterior part, and the apex of the clypeus has not the sides ending in such distinct teeth.

Symmorphus trisulcatus sp. nov.

Black, the clypeus, the basal three-fourths of the mandibles, underside of scape, two minute spots over antennæ, a small spot behind the eyes, a triangular mark on either side of the base of pronotum, an irregular spot below the tegulæ, two spots, wider than long, on apex of scutellum, broad, continuous lines on the apices of the basal five abdominal segments, that on the 2nd continued on to the whole of the ventral surface, and that on the 3rd and 4th on to the sides only, bright orange yellow; the apices of the femora, the tibiæ and the tarsi of a paler orange yellow, the four anterior tibiæ with a broad black line in the middle behind; wings hyaline, the costa and stigma testaceous, the nervures black. ♂. Length (total) 9 mm.

Clypeus as long as wide, almost smooth, the apex with a semi-circular incision; the front and vertex closely, strongly punctured; the space between the ocelli aciculated. Base of thorax transverse, keeled, the sides slightly projecting; the apex smooth above, to near the middle, margined by a stout keel. Basal half of mesonotum strongly closely punctured, the middle more coarsely and closely than the sides; the apical half more sparsely punctured; the parapsidal furrows extend from the base to the apex: they are deep and clearly defined. Scutellum strongly, sparsely punctured, furrowed, but not deeply, down the middle. Postscutellum prominent, raised above the scutellum, coarsely, rugosely punctured, except at the apex below, where it is smooth and broadly rounded. Propleuræ strongly punctured above, the rest irregularly longitudinally reticulated-striated; the mesopleuræ irregularly punctured, and with a wide, obliquely rugose furrow below the middle; the metapleuræ reticulated above, the rest with fine, close curved striæ. The 1st abdominal segment before the transverse keel is smooth, the keel is stout, clearly raised; the apical part is stoutly punctured, depressed in the middle, the depression narrower and more clearly limited at the apex; the 2nd is longer than it is wide at the apex; it is narrowed and clearly separated from the 1st at the base. Antennæ stout, the apex slightly turned down and brown.

The body is long, narrow, the thorax about three times longer than wide. The apices of the 2nd to 4th abdominal segments are more distinctly punctured than the bases; the apical segments smooth. Seen from the front the head is longer than wide. The basal slope of the long 1st abdominal segment is triangular.

Mountains near Santa Fé, New Mexico.

Odynerus Harringtoni sp. nov.

Black; a broad curved line on the top of the clypeus, a small, transverse oval mark over the antennæ, a short, narrow line at the base of the mandibles, a small spot behind the eyes, a line, narrowed in the centre, on the base of the thorax, post-scutellum and lines on the basal five abdominal segments—that on the 1st broadly dilated laterally, and that on the 2nd extended to the outer edge of the segment—luteous, there being also a small luteous conical mark under the tegulæ. Wings hyaline, suffused with violaceous, the stigma and nervures black; the tegulæ pale luteous, with a large fuscous central spot. Underside of antennal scape luteous. ♀. Total length 10 mm.

Clypeus pyriform, as wide as long, closely, strongly punctured, the apex depressed, transverse. Base of thorax slightly rounded, the sides of the apex bluntly rounded, rugose. Apex of post-scutellum bluntly rounded, almost transverse, smooth. Thorax about twice longer than wide. Apex of femora, the tibiæ and tarsi luteous, suffused with rufous. There is a short, but distinct pedicle to the 1st abdominal segment.

New Mexico. Allied to *O. campestris* Sauss., which may be known by being larger, by the red femora, by the spot on the sides of metanotum and scutellum.

Odynerus ruficaudis sp. nov.

Rufous; the top of the clypeus, the greater part of the front, a band on the base of pronotum, reaching to the middle on the outer half, scutellums, the sides of metanotum broadly, a mark below the tegulæ, roundly narrowed at the base above, the apex straight, the lower part rounded, the apices of all the abdominal segments except the last, the line on the 1st broadly dilated backwards to the top of the apical slope and the apex of the 2nd ventral, pale yellow; the legs colored like the body. The flagellum from the 3rd joint is black; the scape and basal joints red. Wings hyaline, suffused with violaceous, the costa fulvous. ♀. Length 9–11 mm.

Clypeus clearly broader than long, strongly punctured, the apex almost transverse, with a short blunt tooth laterally. Head, pro- and mesothorax strongly, closely punctured; the base of the mesonotum and the apex at the sides black; there is a furrow down the apical slope of the scutellum. Apex of post-scutellum transverse, smooth, with a steep slope; its top is more rugosely punctured than the scutellum. Sides of metanotum with a somewhat sharp edge; the upper half of the centre is almost smooth: the lower transversely striated, the rest punctured; the base of metapleuræ almost smooth, the rest closely, somewhat rugosely obliquely striated. The 1st abdominal segment smooth, cup-shaped; the 2nd is slightly wider than long, closely punctured, most strongly at the apex; the others are more coarsely punctured. Mandibles rufous, slightly yellow at the base; the inner edge blackish.

New Mexico. The two specimens I have examined are identical in coloration. The species may be only a form of *annulatus*, but all the specimens I have seen of that species have the 2nd abdominal segment shorter, broader and with a broad—broadest in the middle—strongly punctured depression on the apex. None of the specimens of *annulatus* I have seen have the apex of the abdomen rufous—it is either yellow or black.

Odynerus pulchrinervis sp. nov.

Black, a broad curved line, narrowed below, dilated irregularly in the middle, on the sides of clypeus, on the upper two-thirds, a small spot, wider than long, transverse above, roundly narrowed below, over the antennæ, a broad, irregular line on the lower half of the eye incision, a line, about five times longer than wide, on the upper outer orbits, a line, narrowed in the middle, on the base of the thorax, a triangular mark on the sides of the metanotum above, tegulæ, except for a fuscous spot, a longish conical mark below them; broad bands on the basal four abdominal segments, that on the 1st broadly dilated backwards on the sides and then more narrowly and irregularly towards the centre, a transverse line, about three times longer than wide, on the sides of the 2nd segment and the greater part of the tibiæ, pale whitish yellow; the tarsi rufous. Wings hyaline, the costal cellule tinged with fulvous, the radial cellule smoky, the radius, costa, stigma and post-costal nervures bright fulvous. ♀. Total length 12 mm.

First abdominal segment cup-shaped, smooth, slightly narrower than the second, which is clearly wider than long and has its apex slightly incurved; the punctuation becomes gradually from the base towards the apex, the apices of the segments being more strongly punctured than the rest. Head as wide as the thorax, the upper part of the head and the thorax closely, strongly punctured. Clypeus shining, sparsely weakly punctured, pyriform, a little longer than wide, the apex depressed, slightly broadly incised. Base of thorax slightly, broadly, roundly dilated in the middle. Base of post-scutellum raised, forming a broad rugose ridge, its apical slope smooth, transverse. The flat upper part of the metanotum forms a curved rugose ridge on the outer edge, ending in a blunt projection, from which the lower side retreats obliquely; down the centre of the metanotum is a raised smooth line; the part bordering this is distinctly, but not strongly obliquely striated. The thorax is somewhat more than twice longer than wide, and is as long as the abdomen. The pubescence is short, close and white; the furrows on the apex of mesonotum are indistinct. Below the apex of the post-scutellum is a smooth, triangular tongue, which runs into the smooth line in the centre of metanotum. The seven or eight basal joints of the flagellum are brown below.

New Mexico. This species shown an approach to the section *Hypodernus*, but has not the body densely haired as in that species.

Odynerus æqualis sp. nov.

Black, the clypeus except for an irregular black mark, rounded above, obliquely narrowed below, in its centre, a mark, broader than long, rounded above, transverse below, over the antennæ, a line on the outer orbits, gradually narrowed below, extending from top to bottom, yellow, tinged with rufous, the base of thorax (the mark on the sides occupying the basal lateral half of pronotum) tegulæ, a small spot on sides of scutellum in the middle, post-scutellum, a mark, broadly dilated inwardly at the base, on the basal half of metanotum, and a small conical mark below the tegulæ, rufous. Abdomen yellow, the basal two segments tinged with rufous; the 1st with the basal slope, the black part having attached to its apex, a broad transverse mark, narrowed on either side at the base, the 2nd with a broad transverse mark, extending to shortly beyond the middle and with a rounded incision in the middle, its base extending to the outer edge of the segment, the apical part much narrower but as long, the basal half of the 5th and 6th segments, a narrow line on the base of the 4th and the base of the ventral narrowly black. Legs rufo-fulvous, the coxæ, trochanters and base of femora black. Wings fuscous violaceous, the costa and nervures black, the stigma dark fulvous. ♀. Length 12 mm.

Clypeus pyriform, as broad as long, strongly, closely punctured, the apex depressed, rufous. Head and thorax closely, strongly punctured, thickly covered with fuscous pubescence. Thorax not quite twice longer than wide, transverse at base and apex, the sides of pronotum rounded, of the metanotum ending in a not very sharp point, above the middle. There is a broad smooth flat line down the middle of metanotum; the sides are obliquely striated. The 1st abdominal segment large, cup-shaped, with a distinct neck at the base and a narrow furrow down the middle of apical half; the apex is sparsely punctured. 2nd abdominal segment square, closely, distinctly punctured, most strongly at the apex, which is slightly incurved; the other segments closely, strongly punctured. Base of ventral segments black. Antennal scape rufous. Mandibles rufo-fulvous, black at the apex.

New Mexico. Allied to *O. santæfeæ* Cam.; in that species the marks on the thorax are yellow, not red; there is a separate mark on the sides of the metanotum at the base, the apical mark on the 1st abdominal segment has a distinct broad basal pedicle by means of which it is attached to the basal; the mark on the 2nd is much wider at the apex, and it is there, on the sides, obliquely narrowed; while in the present species it is rounded and of equal width at the base and apex.

Odynerus santæ-feæ sp. nov.

Black, densely covered with fuscous pubescence; a transverse mark, twice wider than long and with rounded sides, over the antennæ, the clypeus, except the sides and apex, and a large mark, longer than wide, transverse below, more rounded above, in the centre; a narrow short line on the base of the mandibles, a short line on the top of the outer orbits, a line, narrowed in the middle, the sides of almost equal width, on the base of the thorax, a conical mark, its top obliquely truncated, below the tegulæ, tegulæ, except for a fuscous mark at the base, the basal half of post-scutellum, a large oval, transverse mark on the top of metanotum at the sides, a broad, irregular line down the apical two-thirds of its sides, and the apices of the abdominal segments broadly, sulphur yellow; the abdomen has the following parts black: the basal slope of the 1st segment, its middle third prolonged beyond the top, and having, at its apex, a transverse mark, with the sides gradually narrowed to a bluntly-rounded point, which does not reach to the sides of the segment; slightly more than the basal two-thirds of the 2nd segment, the basal third extending to the outer edges, the middle with an irregular incision in the centre, the incision gradually narrowed to a point on the innerside and longer than it is wide at the apex; the part bounding its apex is narrow; shortly before the apex of the latter the mark becomes obliquely narrowed; the apex itself is transverse; the penultimate segment is broadly black at the base, the mark obliquely roundly narrowed laterally, and with a squarish projecting on either side of the middle, the last segment is black round the edges; the 1st ventral segment black; the 2nd with the base black to shortly beyond the middle, the sides with a curved projection, and the middle with a broader, shorter one, and with an irregular apex; the sides of the following three with broad black lines at the base, roundly dilated on either side of the middle; the last has the apex broadly black. Wings hyaline, infuscated along the fore margin, the costa and stigma fulvous, the nervures black. Legs yellow, tinged with fulvous, the tarsi more rufous in tint, their base black to beyond the middle of the femora; the middle coxæ broadly yellow on the outer apical part. Antennal scape yellow below. ♀. Total length 11 mm.

Clypeus pyriform, as long as wide, strongly punctured, its apex reddish, depressed, the sides slightly projecting. Base of thorax not quite transverse, the middle slightly dilated, the sides of the apex almost margined, rough. The punctuation on the head and thorax is strong and close. The 1st abdominal segment is cup-shaped; the second is as broad as long, its apex reflexed; the punctuation on the 1st and 2nd segments is weak, on the rest coarse and close. The top of the 1st abdominal segment is roughened, but not so strongly as in *Ancistrocerus* proper.

New Mexico. Allied to *O. trichiosomus* Cam., which is also from New Mexico. *O. sapellvensis* Cam. (also from New Mexico) is a more robust species, has the clypeus less strongly and closely punctured, has two longitudinal furrows on the apex of mesonotum, and the 2nd ventral segment has the basal three fourths black, the apex of the black spot not being divided into three broad distinct divisions and the lateral yellow marks on the sides of the metanotum are much smaller.

Odynerus pictiventris sp. nov.

Black; the sides and apex of the clypeus, a spot wider than long, ending in a point in the middle below, over the antennæ, a small mark, narrowed in front, at the base of the mandibles, underside of antennal scape, a broad line on the base of thorax, a large, broad conical spot below the tegulæ, tegulæ except the usual brown spot, two longish lines, separated by the furrow, on the apex of the scutellum, a narrower line on the apex of the post-scutellum, a broad, oblique line on the sides of the metanotum on the lower half, broad bands on the basal two abdominal segments and narrower ones on the 3rd and 4th, these lines, except the basal one, being continued on to the ventral surface, bright orange yellow. Tibiæ and tarsi rufo-fulvous, the apex of the fore femora yellow lined with yellow, the middle pair more narrowly yellow, the posterior still more narrowly, rufous. Wings iridescent, hyaline, the costa and stigma rufo-testaceous. ♀. Length 10 mm.

Head, thorax and base of abdomen densely covered with long fuscous pubescence. Clypeus pyriform, as broad as long, its apex depressed; the black central mark is large, longer than broad, roundly narrowed above, the apex oblique, ending in a narrowed point, longer than broad; it is separated by a distinct space from the apex of the clypeus. Base of thorax transverse, the sides clearly separated, the apex with the sides keeled, the keels dilated at the junction of the lower and upper parts. There is a distinct furrow down the centre of the scutellum. First abdominal segment cup-shaped, short, the basal slope smooth and shining; the 2nd square, closely, finely punctured; the apex is more coarsely punctured; the extreme end is slightly thickened. The yellow lines on the ventral segments are broadly dilated in the middle.

New Mexico. If this species is to be regarded as an *Ancistrocerus* it would come into Saussure's Section 1.

Ancistrocerus nearcticus sp. nov.

Black, the head, thorax, and, to a less extent, the base of abdomen densely covered with long fuscous hair; the underside of antennal scape, clypeus, mandibles, except at apex, a small spot over antennæ and at the eyes behind near the top, a line on the base of thorax, widened behind, before the middle, the base and sides of tegulæ narrowly, the apex more broadly, a small irregular spot on the sides of scutellum at the apex, an irregular conical spot below the tegulæ, and not very broad, regular lines on the apices of the abdominal segments, pale orange yellow; the legs are similarly colored, the four anterior with their coxæ, trochanters, femora and the greater part of the tibiæ behind and the posterior coxæ, trochanters and femora entirely, black. Wings fuscous violaceous, the nervures and stigma black. ♂. Total length 10 mm.

Top and sides of metanotum bordered by stout keels, the centre by a thinner one, the keels broadly rounded on either side above, their upper lateral part stouter than the lower, the central keel thinner. Antennæ stout, thicker towards the apex, the underside of the flagellum except the last joint, brownish orange; the hook short, stout, conical, about twice longer than wide. Clypeus not much longer than wide, sparsely, strongly punctured, the apex with a distinct, wider than long, rounded incision. Thorax more than twice longer than wide, the base transverse, the sides separated, but not projecting; apex of mesonotum with two deep furrows. The 1st abdominal short, the base at the top bluntly rounded, almost transverse; it is sparsely, finely, distinctly punctured; the 2nd very smooth and shining, longer than wide, the apex flat. The metanotal areæ are only punctured round the edges.

Wilmerding, Pa. Belongs to Saussure's Section 1, *a.*, Syn. of Am. Wasps, 160, near *A. tigris* Sauss.

Ancistrocerus parvispinosus sp. nov.

Black, the clypeus, except for an irregular transverse mark, transverse above, narrowed gradually to a point below, in the centre, the interior of the eye incision, a small spot, longer than wide, narrowed below, over the antennæ, a longish line behind the eyes above, antennal scape except above, a line on the base of thorax, laterally reaching close to the middle of pronotum, a large mark, roundly narrowed at the apex, below the tegulæ, a small conical spot, transverse at the base, rounded at apex, in the middle of apex of mesonotum, tegulæ, postscutellum, the sides of metanotum broadly, the apices of the 1st and 2nd abdominal segments broadly, of the 4th and 5th narrowly, an oblique line, not quite so wide as the apical one, running from near the middle to united with its outer edge, a large irregular, oval, transverse spot on the sides of the 2nd segment at the base, orange-yellow; the apical third of the four anterior femora, of the posterior narrowly and the tibiæ and tarsi yellow, tinged with fulvous. Wings iridescent, fuscous, the radial cellule violaceous; the stigma dark testaceous, the nervures black. ♀. Length (total) 9 mm.

Body longish and narrow, the parts of equal width, the base of thorax not quite transverse, the sides blunt, the sides of the metanotum rough. Clypeus pyriform, as wide as long, the apex depressed, transverse. First abdominal segment longish, cup-shaped, the apex slightly raised; the 2nd clearly longer than wide, its apex strongly reflexed, more strongly punctured than the rest. The puncturation of the body is strong and close; there is a distinct, curved tooth on the top of the hind coxæ near the base.

New Mexico, Santa Fé District. In coloration this species is not unlike *A. philetas* Cam., except that *philetas* has the clypeus black with a yellow line on the top; it is, however, a much stouter, broader form with the 1st abdominal segment shorter, cup shaped, gradually rounded from the base to the apex, broader than long, while in the present species it is longer than broad; in it too, the apex of the post scutellum is transverse, not rounded; the base of the 1st abdominal segment has almost a neck, showing an approach to *Nortonia*. *A.* (*Nortonia ?*) *acanthopus* Cam. is not unlike it, but is more slenderly built, wants the oblique lines on the 1st abdominal segment, and the clypeus is black except above.

Ancistrocerus Foxeanus sp. nov.

Black, the clypeus, an irregular line on the lower part of eye orbits, a small squarish mark over the antennæ, a short line on the top of outer orbits, a large mark, rounded and narrowed behind, on the pronotum, a conical mark below the tegulæ, basal half of post-scutellum, a line on the top of the 1st abdominal segment, narrowed laterally, a broader one all round the apex of the 2nd, narrower, more obscure, lines on the 3rd and 4th and an irregular spot on the sides of the 2nd, bright lemon-yellow. The apices of the four anterior femora, the tibiæ and tarsi yellow, the tarsi tinged with rufous; tegulæ brownish red. Wings hyaline, iridescent, the radial cellule fuscous violaceous; the stigma and nervures black. Apex of 2nd abdominal segment strongly reflexed, a strongly crenulated furrow behind. ♂. Total length 7 mm.

Clypeus as wide as long, strongly, but not closely punctured, the apex with a semicircular incision. Base of thorax transverse, with clearly defined lateral edges, but not toothed. Apex of post-scutellum transverse. Sides of metanotum blunt, rugosely punctured, the centre depressed, irregularly striated and punctured. Apex of 1st abdominal segment smooth, slightly raised, behind this smooth part is a strongly, deeply punctured border. The 2nd abdominal segment is as long as wide and is slightly narrowed at the base. Antennal scape yellow below, the flagellum stout, black, the hook brownish, stout, narrowed towards the apex, which reaches to nearly the apex of the 11th joint. On the lower outer lateral edge of the metanotum is a stout, unequally bifid spine.

Sunbury, Pa. Belongs to Saussure's Section B, *b*. It cannot well be confounded with any of the few species known of that group.

Ancistrocerus quebecensis sp. nov.

Black, the head, thorax and base of abdomen densely covered with long hair, that on the head distinctly longer than it is on the thorax; the sides of the metanotum margined by a stout keel; the clypeus, labrum, mandibles, except at apex, underside of antennal scape, a line on the top of 1st abdominal segment, and broader lines on the following all round, pale yellow, almost white; the tibiæ and tarsi of a brighter yellow color, the apical joints of the tarsi more rufous in color; the four anterior tibiæ marked with black. Tegulæ black. Wings almost hyaline, the stigma dark fuscous, the nervures black. Antennal hook brown. ♂. Total length 7 mm.

Antennæ stout, the hook sharp-pointed, not reaching to the base of the 12th joint. Clypeus nearly as wide as long, sparsely, weakly punctured, the apex with a distinct rounded incision. Thorax hardly twice longer than wide, closely, strongly punctured, the base-transverse, with distinct lateral angles, but not dentate. Apex of post-scutellum almost transverse, strongly aciculated; below its centre is a distinct, shining, triangular raised space, which unites with the central keel of the metanotum, which is strongly aciculated; its sides, bordered by the keel, are broadly rounded in the centre. Pro- and mesopleuræ closely, rugosely punctured; the metapleuræ coarsely aciculated. The apices of the basal two abdominal segments are flat; the 2nd is, if anything, wider than long, and is narrowed at the base. The lower lateral edge of the metanotum ends in a broad tooth.

Montreal. I cannot make this little species agree with any of the described species with keeled edges of metanotum. It comes into Saussure's Section II., Syn. of Am. Wasps, 177, "the concavity of the metathorax" forming "no distinct lateral angles."

Description of a New Species of ODYNERUS from North Mexico.

BY P. CAMERON.

Odynerus Packardi sp. nov.

Black, the clypeus, a line, dilated above, on the lower side of the eye incision, a spot, longer than wide and of equal width, over the antennæ, two clearly separated marks, narrowed on the outerside, on the base of the thorax, a narrow line on the base of tegulæ, a small squarish spot below them, a line on the base of post-scutellum, a band on the upper part of the 1st abdominal segment and a wider one, going all round, on the apex of the 2nd, pale yellow, legs black, the apex of the femora and the tibiæ broadly pale yellow, the tarsi of a darker yellow. Wings hyaline, iridescent, the radial cellule fuscous violaceous, the stigma and nervures black. ♀. Length to end of 2nd abdominal segment 6 mm.

Clypeus as wide as long, sparsely punctured, the apex with a wide shallow incision. Base of thorax transverse, the sides of the apex broadly rounded. Post-scutellum broadly triangular, the apex rounded. The punctuation on the head is strong, but not close; it is finely and closer on the sides of metanotum, the centre is very sparsely punctured; the base of metapleuræ aciculated, the rest distinctly, somewhat widely punctured. Base of 1st abdominal segment smooth, the top with an indistinct ridge, the rest is strongly punctured, the apex is slightly raised; the segment is cup-shaped, narrower than the 2nd. The 2nd segment is slightly wider than long; its apex is more strongly punctured than the rest and is strongly reflexed; at the base it is rounded, not transverse. There are no furrows on the mesonotum. The punctuation is coarser and closer on the head than on the thorax; the pubescence is short. sparse.

Belongs to the section *Stenancistrocerus*, 3, *b*, of Saussure's Syn. of Amer. Wasps, p. 209.

ERRATA.

Page 78, line 37, for "parosetæ" read "paroselæ."
" 80, " 31, " "plenacoides" read "phenacoides."
" 82, " 25, " "*not at all black*" read "*not all black.*"
" 97, No. 12, " "hoffmanseggia" read "hoffmanseggiæ."
" 98, " 65, " "fratera" read "fraterna."
" 99, " 114, " "gohrmannæ" read "gohrmanæ."
" 99, " 135, " "enops" read "euops."
" 103, " 330, " "parosetæ" read "paroselæ."
" 103, " 341, " "raphælis" read "raphaelis."
" 104, Note 2, " "for" read "from."
" 104, " 6, " "*Anthemœssa*" read "*Anthemoëssa.*"
" 105, " 16, " "*Ancycloscelis*" read "*Ancyloscelis.*"
" 105 and 106, " "Latrielle" read "Latreille."
In Check List, pp. 97-104, for "N. Mex." and "N. Mexico" read "New Mex." or "New Mexico."
Page 306, line 7, for "Romersville" read "Romeroville."
" 308, " 25, " "prosopidus" read "prosopidis."
For additional errata see page 156*b*.

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The names of new genera and of new species are followed by the name of the Author.

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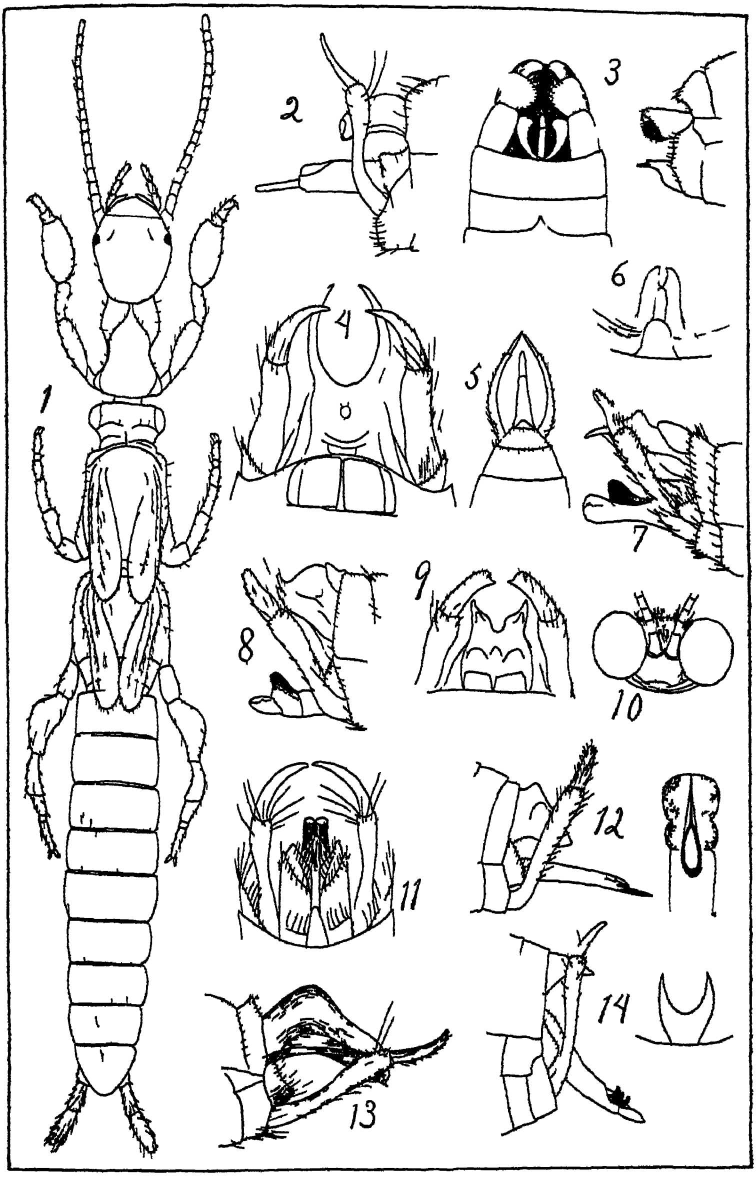

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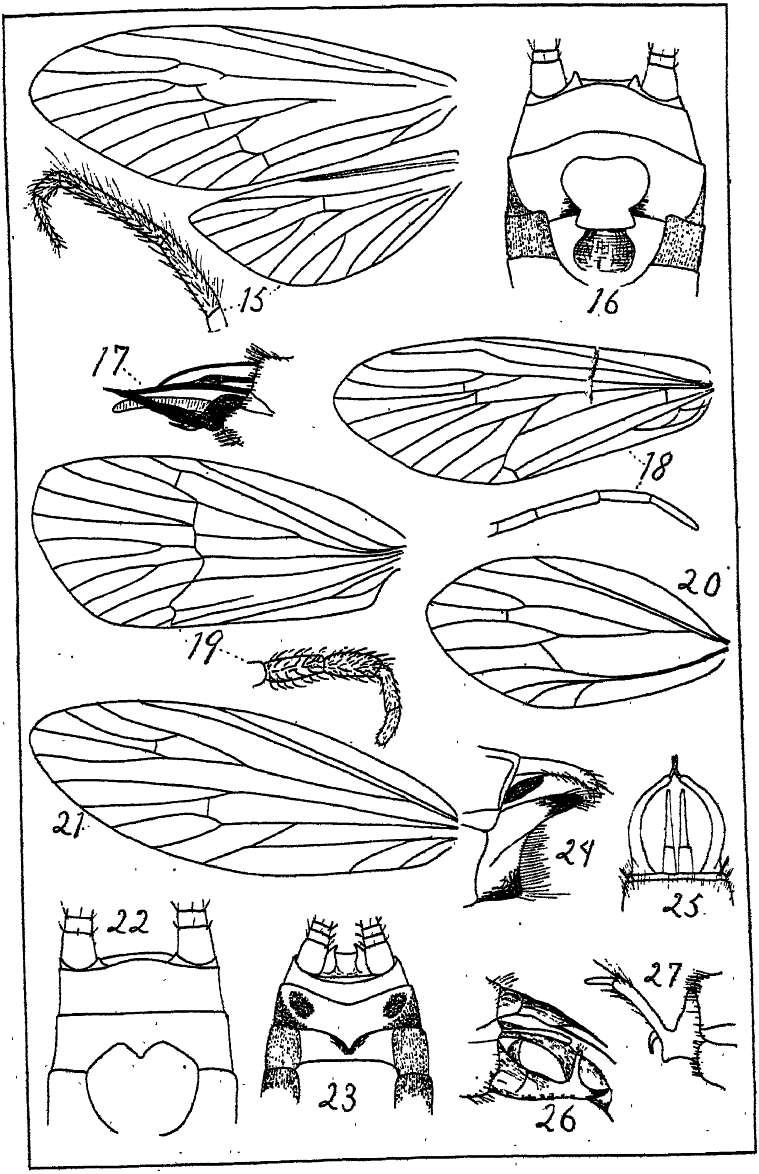

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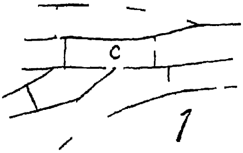

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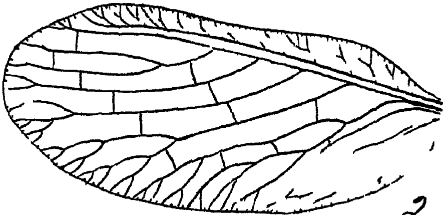

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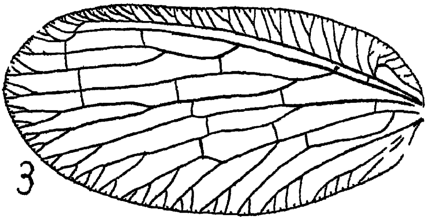

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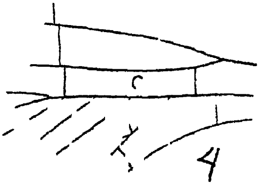

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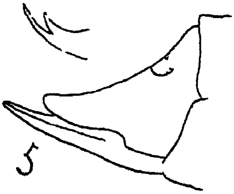

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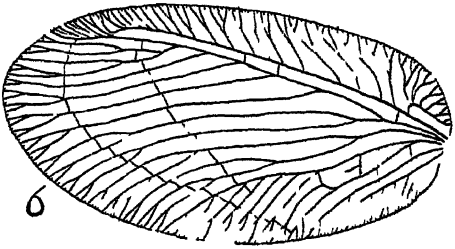

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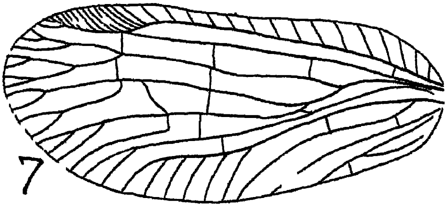

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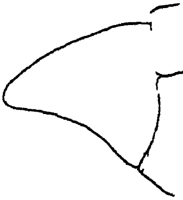

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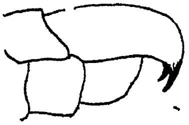

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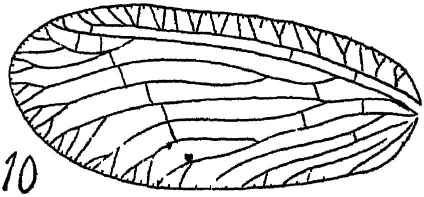

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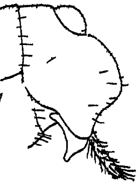

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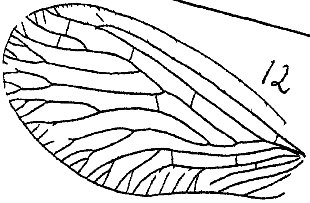

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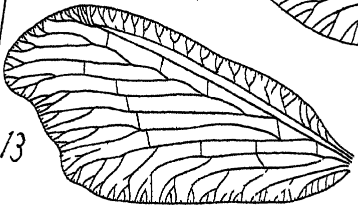

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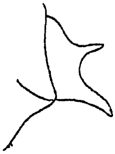

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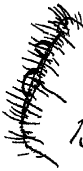

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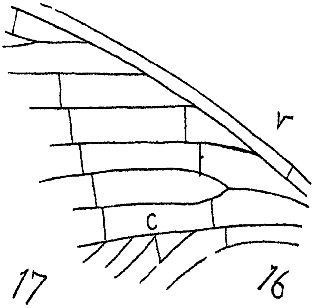

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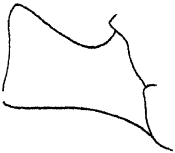

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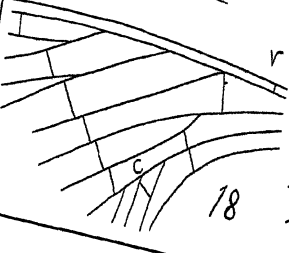

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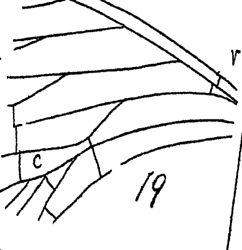

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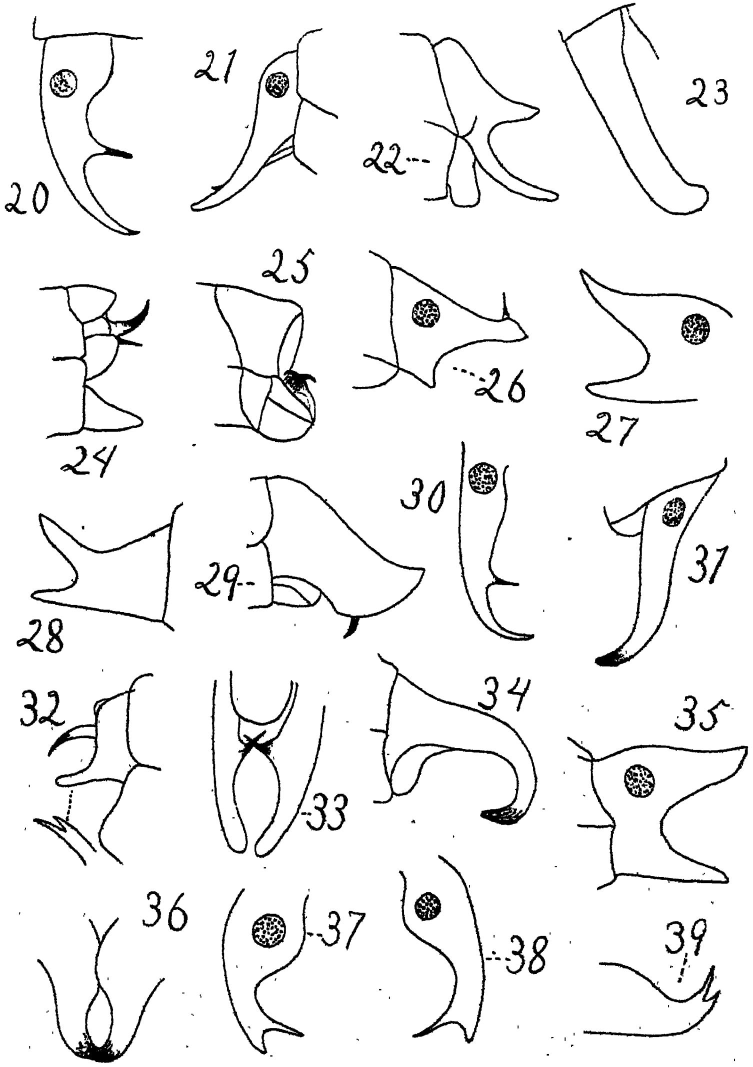

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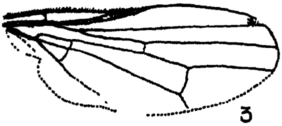

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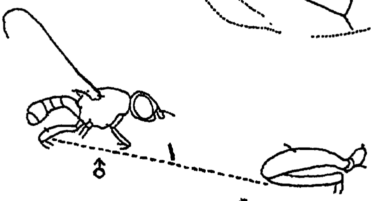

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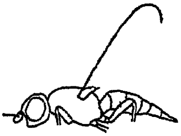

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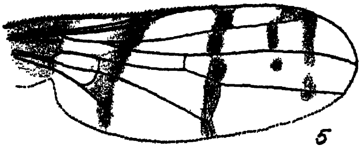

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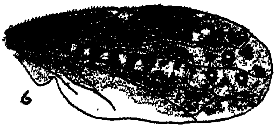

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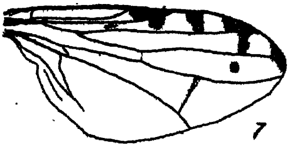

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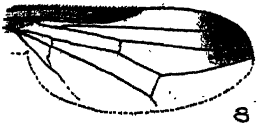

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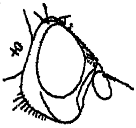

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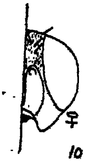

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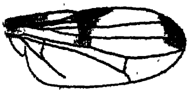

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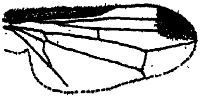

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E.T. Cresson, Jr.